

**RG-S2300**

**RGOS 10.2(5)**

©2009



RGOS®10.2(5)

'  
'  
'

**1.**

5



Courier New

5

**2.**

Arial

```
[] []
{x|y|...}
[x|y|...]
//
```

**3.**

/

/

# CLI

## alias

alias

no

**alias** *mode command-alias original-command*  
**no alias** *mode [original-command]*

*mode*  
*command-alias*  
*original-command*

EXEC

EXEC

<b>h</b>	<b>help</b>
<b>p</b>	<b>ping</b>
<b>s</b>	<b>show</b>
<b>u</b>	<b>undebug</b>
<b>un</b>	<b>undebug</b>

**no alias exec****alias ?**

```
Ruijie(config)# alias ?
aaa-gs          AAA server group mode
acl             acl configure mode
bgp            Configure bgp Protocol
config         globle configure mode
```

\*

*\*command-alias=original-command*

```
EXEC          "s"  "show"
"s?"         's'
```

Ruijie# **s?**

\*s=show show start-chat start-terminal-service

```
EXEC          "sv"  "show version"
```

Ruijie# **s?**

\*s=show \*sv="show version" show start-chat  
start-terminal-service

Ruijie# **s?**

show start-chat start-terminal-service

```
"ia"  "ip address"
```

Ruijieig)# 9ff)# **ia ?**

A.B.C.D IP address

dhcp IP Address via DHCP

Ruijieig)# 9ff)# **ip address**

```
"ip address"
```

**show aliases**

dhcp IP Address via DHCP

Ruijie)# 9ff)#

```
*def-route="ip route 0.0.0.0 0.0.0.0 192.168.1.1"
Ruijie(config)# def-route?
% Unrecognized command.
Ruijie(config)# end
Ruijie# show aliases config
globe configure mode alias:
def-route          iproute 0.0.0.0 0.0.0.0 192.168.1.1
```



<b>exec</b>	
<b>interface</b>	
<b>ip-dhcp-pool</b>	DHCP
<b>keychain</b>	KeyChain
<b>keychain-key</b>	KeyChain-key
<b>time-range</b>	Time-Range

CLI 1 "test" reload

```
Ruijie(config)# enable secret level 1 0 test
Ruijie(config)# privilege exec level 1 reload
```

1 CLI reload

```
Ruijie> reload ?
<cr>
```

reload 1 all

```
Ruijie(config)# privilege exec all level 1 reload
```

1 CLI reload

```
Ruijie> reload ?
at reload at a specific time/date
cancel cancel pending reload scheme
in reload after a time interval
<cr>
```

<b>enable secret</b>	CLI

## show aliases

EXEC

show aliases

show aliases [mode]

mode

EXEC

EXEC

Ruijie# **show aliases exec**

exec mode alias:

h	help
p	ping
s	show
u	undebug
un	undebug

<b>alias</b>	

---

CLI

- ' **disable**
- ' **enable**
- ' **enable password**
- ' **enable secret**
- ' **password**
- ' **login**
- ' **login local**
- ' **login authentication**
- ' **username**
- ' **lock**
- ' **lockable**
- ' **telnet**
- ' **enable service**

## **disable**

disable

**disable** [ *privilege-level* ]

*privilege-level*

---

/

**disable**

Ruijie# **disable** 10

<b>enable</b>	

**enable**

enable

**enable password**

**enable password**

**no**

**enable password** [level *level*] {*password* | [0 | 7] *encrypted-password*}

**no enable password**

*Password*

EXEC

---

' 1 26  
'

EXEC

---

```

15          15          security          0
15
password          15          password
          security          15          password
security
password          security

          pw10
Ruijie(config)# enable secret 0 pw10

```

<b>enable password</b>	

## password

```

          line          line          password
no          line

password {password | [0|7] encrypted-password}
no password

password          line
0|7          0          7
encrypted-password

line

          line

          line          red
Ruijie(config)# line vty 0
Ruijie(config-line)# password red

```

---

<b>login</b>	

## login

```
AAA
    login      no
login
no login
```

line

```
AAA
    VTY      console
```

VTY

```
Ruijie(config)# no aaa new-model
Ruijie(config)# line vty 0
Ruijie(config-line)# password 0 normatest
Ruijie(config-line)# login
```

<b>password</b>	line

## login local

```
AAA
```

---

line

AAA

**username**

VTY

```
Ruijie(config)# no aaa new-model
Ruijie(config)# username test password 0 test
Ruijie(config)# line vty 0
Ruijie(config-line)# login local
```

<b>username</b>	

## login authentication

AAA

AAA

**no**

**login authentication** {default | *list-name*}

**no login authentication** {default | *list-name*}

**default**

*list-name*

line

AAA

---

VTY

radius

```
Ruijie(config)# aaa new-model  
Ruijie(config)# aaa authentication login default radius  
Ruijie(config)# line vty 0  
Ruijie(config-line)# login authentication default
```

<b>aaa new-model</b>	AAA
<b>aaa authentication login</b>	

## username

username

```
username name {nopassword | password { 666777 PBz$MBi0KAP%imZç@username
```

```
Ruijie(config)# username test privilege 15 password 0
pw15
```

login local	

## lock

EXEC      lock

lock

1.      lock

2.

" Locked"

3.

line

lockable

line

```
Ruijie(config-line)# lockable
```

```
Ruijie(config-line)# end
```

```
Ruijie# lock
```

```
Password: <password>
```

```
Again: <password>
```

```
Locked
```

```
Password: <password>
```

---

Ruijie#

<b>lockable</b>	

## lockable

**lock**                      **lock**                      line                      **no**                      **lockable**

**lockable**

**no lockable**

line

EXEC                      **lock**

```
Ruijie(config)# line console 0
Ruijie(config-line)# lockable
Ruijie(config-line)# end
Ruijie# lock
Password: <password>
Again: <password>
Locked
Password: <password>
Ruijie#
```

<b>lock</b>	

---

## telnet

telnet

EXEC

**telnet**

**telnet** *host* [*port*] [*keyword*]

*Host*

IP

*Port*

TCP

23

*Keyword*

--	--

---

<b>ssh-server</b>	SSH Server
<b>telnet-server</b>	Telnet Server
<b>web-server</b>	Http Server
<b>snmp-agent</b>	Snmp Agent

!

---

Web

**no ip http authentication**

**ip http authentication local,** Web

local

Ruijie(Config # **ip http authentication local**

<b>enable service</b>	

## ip http port

HTTP

**ip http port**

**ip http port** *number*

*number* HTTP Server 80

HTTP

**no ip http port**

HTTP 8080

Ruijie(Config # **ip http port 8080**

<b>enable service</b>	

---

```
' clock set
' clock update-calendar
' exec-timeout
' hostname
' session-timeout
' show clock
' show cpu
' show cpu slot
' show memory
' show memory slot
' show running-config
' show startup-config
' reload
' show reload
' prompt
' banner motd
' banner login
' speed
' show line
' write
```

## clock set

clock set

**clock set** *hh:mm:ss month day year*

---

clock set

2008 1 30 05 54 43

Ruijie# **clock set** 05:54:43 1 30 2008

Ruijie# **show clock**

05:54:43 CHN-BJ Wed 2008-01-30

<b>show clock</b>	

## clock update-calendar

clock clock privileged EXEC clock  
**update-calendar** clock clock  
**clock update-calendar**

calendar

clock clock  
Ruijie# **clock update-calendar**

---

## exec-timeout

```
LINE                               exec-timeout
no exec-timeout                   LINE
exec-timeout minutes [seconds]
no exec-timeout

minutes
seconds

10 min

LINE

LINE

line vty 0                        5 30 :
Ruijie(config-line)# exec-timeout 5 30
```

## hostname

```
hostname

hostname name

name
63

Ruijie
```

CHAP



---

detail

**show clock**

```
Ruijie# show clock detail
05:54:43 CHN-BJ Wed 2008-01-30
Clock read from calendar when system boot.
```

clock set	

**show cpu**

CPU

**show cpu**

CPU

**show cpu**

```
Ruijie# show cpu
CPU utilization in five seconds: 0%
CPU utilization in one minute : 35%
CPU utilization in five minutes: 33%
NO   5Sec   1Min   5Min   Process
0    0%    0%    0%    LISR INT
1    0%    0%    0%    HISR INT
2    0%    0%    0%    ktimer
3    0%    0%    0%    atimer
4    0%    0%    0%    printk_task
```

---

```

 5   0%   0%   0%   waitqueue_process
 6   0%   0%   0%   tasklet_task
 7   0%   0%   0%   kevents
 8   0%   0%   0%   snmpd
 9   0%   0%   0%   snmp_trapd
10   0%   0%   0%   mtdblock
11   0%  35%  33%   gc_task
12   0%   0%   0%   Context
13   0%   0%   0%   kswapd
14   0%   0%   0%   bdflush
15   0%   0%   0%   kupdate
16   0%   0%   0%   buffcopy
17   0%   0%   0%   ll_mt
18   0%   0%   0%   ll main process
19   0%   0%   0%   ISDN MAIN
20   0%   0%   0%   tnet
21   0%   0%   0%   Tarptime
22   0%   0%   0%   gra_arp
23   0%   0%   0%   Ttcptimer
24   0%   0%   0%   gk process
25   0%   0%   0%   rl_con
26 100%  65%  67%   idle

```

**show cpu**

CPU utilization in five seconds	5 CPU
CPU utilization in one minute	1 CPU
CPU utilization in five minutes	5 CPU
NO	
Process	
5Sec	5 CPU
1Min	1 CPU
5Min	5 CPU

--	--

---

## show cpu slot

CPU

**show cpu slot** [*slot-number*]

*slot-number*

CPU

CPU

1 1 CPU

Ruijie# **show cpu slot 1**

CPU utilization for five seconds: 3%

CPU utilization for one minute : 2%

CPU utilization for five minutes: 1%

2 CPU

Ruijie# **show cpu slot**

slot 1 CPU information

CPU utilization for five seconds: 3%

CPU utilization for one minute : 2%

CPU utilization for five minutes: 1%

slot 3 CPU information

CPU utilization for five seconds: 5%

CPU utilization for one minute : 2%

CPU utilization for five minutes: 1%

<b>show cpu</b>	CPU

## show memory

---

show memory

795

0200

---

*slot-number*

1 1

```
Ruijie# show memory slot 1
Physical Memory: 256M total
Image: 45M
Application Memory: 211M (55M used 156M available)
Utilization: 39.1%
```

2

```
ruijie# show memory slot
slot 1 memory information
Physical Memory: 256M total
Image: 45M
Application Memory: 211M (55M used 156M available)
Utilization: 39.1%
slot 3 memory information
Physical Memory: 256M total
Image: 45M
Application Memory: 211M (57M used 154M available)
Utilization: 39.8%
```

<b>show memory</b>	

## **show running-config**

**show running-config**

**show running-config**

---

## show startup-config

NVRAM

**show startup-config**

**show startup-config**

NVRAM

startup-config

## reload

**reload**

**reload** [ *text* | **in** [ *hh:* ] *mm* [ *text* ] | **at** *hh:mm* [ *month day* | *day month* ]  
[ *text* ] | **cancel** ]

*text* 1-255

**in** [ *hh:* ] *mm* 24

**at** *hh:mm*

*month* 3 Mar

*day* 1 31

**cancel**

10

Ruijie# **reload in 10**

Router will reload in 600 seconds.

---

## show reload

**reload**

**show**

**show reload**

```
Ruijie# show reload  
Reload scheduled in 595 seconds.  
At 2003-12-29 11:37:42  
Reload reason: test.
```

## prompt

**no prompt**

**prompt**

**prompt** *string*

*string*

32

EXEC

RGOS

```
Ruijie(config)# prompt RGOS  
Ruijie(config)# end
```

---

RGOS

## banner motd

```
no banner motd
banner motd
banner motd c message c
c
message
```

```
Ruijie(config)
Ruijie(config)# banner motd $ hello,world $
```

## banner login

```
no banner login
banner login
banner login c message c
c
message
```

---



---

**memory**

```
Ruijie# write  
Building configuration...  
[OK]
```

<b>show running-config</b>	
<b>copy</b>	

# LINE

## LINE

### line

#### LINE

**line** [**aux** | **console** | **tty** | **vty**] *first-line* [*last-line*]

<b>aux</b>	
<b>console</b>	
<b>tty</b>	
<b>vty</b>	telnet/ssh
<i>First-line</i>	first-line
<i>Last-line</i>	last-line

#### LINE

LINE VTY 1 3 LINE

Ruijie(config)# **line vty 1 3**

## line vty

```

VTY
VTY
no
line vty line-number
no line vty line-number

```

```

VTY      5      0--4

```

```

VTY

```

```

VTY      20      VTY      0--19
Ruijie(config)# line vty 19
VTY      10      VTY      0—9
Ruijie(config)# line vty 10

```

## transport input

```

Line
transport input
default transport input
Line
LINE

```

```

transport input {all | ssh | telnet | none}
default transport input

```

<b>all</b>	Line
<b>ssh</b>	Line SSH
<b>telnet</b>	Line Telnet

LINE

---

none	Line
------	------

NONE                      VTY                      TTY  
**default transport input**

Line

Line                      VTY  
VTY                      **show running**                      Line

ut                      **default transport input**                      **no transport inp**  
rt input none                      LINE                      transpo

**[no] access-class** *access-list-number* {**in** | **out**}

<i>access-list-number</i>	access-list
<b>in</b>	
<b>out</b>	

Line

Line

Line

access list **access-class**  
Line **show running**

line vty 0 4 access-list 10

```
Ruijie# configure terminal
Ruijie(config)# line vty 0 4
Ruijie(config-line)# access-class 10 in
```

<b>show running</b>	

RGOS10.1

---

	CLI	COPY
' Xmodem		<b>copy xmodem</b>
' Tftp		<b>copy tftp</b>

## copy xmodem

xmodem

xmodem

**copy flash: filename xmodem**

**copy xmodem flash: filename**

*filename*

Xmodem

Xmodem

:

xmodem

xmodem

:

Ruijie# **copy xmodem flash: config.text**

Ruijie# **copy flash: config.text xmodem**



- 
- ' ping
  - ' traceroute

## ping

Q

**ping** [**ip**] [*ip-address* [**length** *length* ] [**ntimes** *times*] [**timeout** *seconds*]  
[**data** *data*] [**source** *source*]

<i>ip-address</i>	IPv4
<i>length</i>	
<i>times</i>	
timeout	
<i>data</i>	

*source*

IPv4

---

```

                2          5          100Byte
            IP          '!'
            ' .'          ping
                ping
                ping
                                DNS
    
```

ping

```

Ruijie# ping 192.168.5.1
Sending 5, 100-byte ICMP Echoes to 192.168.5.1, timeout
is 2 seconds:
 < press Ctrl+C to break >
!!!!!
Success rate is 100 percent (5/5), round-tripmin/avg/max
= 1/2/10 ms
    
```

ping

```

Ruijie# ping 192.168.5.197 length 1500 ntimes 100 timeout
3 data ffff source 192.168.4.10
    
```

```

Sending 100, 1000-byte ICMP Echoes to 192.168.5.197,
timeout is 3 seconds:
    
```

< press Ctrl+C to break >

```

!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 100 percent (100/100), round-trip
min/avg/max = 2/2/33524.4 ms, To 2.3, Tc 2.3, 30 Td[<4.0
    
```

ß, Q @ 1

<i>ip-address</i>	IPv4
<i>number</i>	
<i>source-address</i>	IPV4
<i>seconds</i>	
<i>minimum maximum</i>	TTL

traceroute

DNS

traceroute

1 traceroute

Ruijie# **traceroute** 61.154.22.36

< press Ctrl+C to break >

Tracing the route to 61.154.22.36

```

1    192.168.12.1    0 msec  0 msec  0 msec
2    192.168.9.2    4 msec  4 msec  4 msec
3    192.168.9.1    8 msec  8 msec  4 msec
4    192.168.0.10   4 msec  28 msec 12 msec
5    202.101.143.130 4 msec  16 msec 8 msec
6    202.101.143.154 12 msec 8 msec 24 msec
7    61.154.22.36  12 msec 8 msec 22 msec

```

Ruijie#

```

                                     IP
61.154.22.36                          1 6

```

2 traceroute

Ruijie# **traceroute** 202.108.37.42

< press Ctrl+C to break >

Tracing the route to 202.108.37.42

```

1    192.168.12.1    0 msec  0 msec  0 msec

```

---

```
2      192.168.9.2          0 msec  4 msec  4 msec
3      192.168.110.1       16 msec 12 msec 16 msec
4      * * *
5      61.154.8.129       12 msec 28 msec 12 msec
6      61.154.8.17        8 msec 12 msec 16 msec
7      61.154.8.250       12 msec 12 msec 12 msec
8      218.85.157.222     12 msec 12 msec 12 msec
9      218.85.157.130     16 msec 16 msec 16 msec
10     218.85.157.77      16 msec 48 msec 16 msec
11     202.97.40.65       76 msec 24 msec 24 msec
12     202.97.37.65       32 msec 24 msec 24 msec
13     202.97.38.162      52 msec 52 msec 224 msec
14     202.96.12.38       84 msec 52 msec 52 msec
15     202.106.192.226    88 msec 52 msec 52 msec
16     202.106.192.174    52 msec 52 msec 88 msec
17     210.74.176.158     100 msec 52 msec 84 msec
18     202.108.37.42      48 msec 48 msec 52 msec
```

Ruijie#

```

                                     IP
202.108.37.42                        1 17
4
```

Ruijie# **traceroute** *www.ietf.org*

TranslatiniT2 1 Tf-0 1 Tf-0.0013 -6(84)Tj/TT4.org 84

---

---

```
' interface aggregateport
' interface fastEthernet
' interface giagbitEthernet
' interface vlan
' medium-type
' descriptioin
' shutdown
' speed
' duplex
' flowcontrol
' mtu
' clear counters
' clear interface
' switchport
' snmp trap link-status
' line-detect
```

## interface aggregateport

no

```
interface aggregateport port-number
```

*port-number* Aggregate port

aggregate port

aggregate port

---

aggregate port  
interfaces aggregateport

show interfaces show

---

*mod-num/port-num* /

**no** **show interfaces**  
**show interfaces gigabitEthernet**

```
Ruijie(config)# interface gigabitEthernet 1/2  
Ruijie(config-if)#
```

<b>show interfaces</b>	

## interface vlan

virtual interface SVI **switch**  
SVI. **no**

**interface vlan** *vlan-id*  
**no interface vlan** *vlan-id*

*vlan-id* VLAN ID

**show interfaces** **show interfaces vlan**

```
Ruijie(config)# interface vlan 2  
Ruijie(config-if)#
```

--	--

---

show interfaces	
-----------------	--

## medium-type

no

**medium-type { fiber | copper }**

**no medium-type**

**fiber**

**copper**

Ap SVI

```
Ruijie(config)# interface gigabitethernet 1/1
```

```
Ruijie(config-if)# medium-type copper
```

show interfaces	

BASE-T

SFP

10/100/1000M

## descriptoin

no

**description *string***

---

**no description**

*string*

---

---

---

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# speed 100
```

<b>show interfaces</b>	

## duplex

**no**

**duplex {auto | full | half}**

**no duplex**

**auto**

**full**

**half**

**show interfaces**

```
Ruijie(config-if)# duplex full
```

<b>show interfaces</b>	

---

## flowcontrol

no

**flowcontrol {auto | off | on}**

**no flowcontrol**

**auto**

**off**

**on**

W#A

ÚTz€

---

1500

mtu

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# mtu 9216
```

show interfaces	

## carrier-delay

### carrier-delay

no

carrier-delay [ *seconds* ]

no carrier-delay

*seconds* 1 60

2

DCD

DCD Down Up

DCD

DCD

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config)# carrier-delay 5
```

## clear counters

**clear counters** [*interface-id*]

*interface-id*

**show interfaces**

**clear counters**

```
Ruijie# clear counters gigabitethernet 1/1
```

<b>show interfaces</b>	

## clear interface

**clear interface** *interface-id*

*interface-id*

Switch Port,L2 Aggregate port ,Routed port,L3  
 Aggregate port  
**shutdown no shutdown**

Ruijie# **clear interface gigabitethernet 1/1**

<b>shutdown</b>	

## switchport

2 **switchport**  
 3 **no switchport**  
**switchport**  
**no switchport**

2

switchport

2

3

2

Ruijie(config-if)# **switchport**

<b>show interfaces</b>	

## switchport mode

access port trunk port, switch port 802.1Q **no**

---

**switchport mode {access | trunk}**

**no switchport mode**

<b>access</b>	switch port	access port
<b>trunk</b>	switch port	trunk port

switch port                  access

switch port                  access                  VLAN  
**switchport access vlan**                  VLAN

switch port                  trunk                  VLAN  
port                  VLAN                  VLAN                  VLAN                  trunk  
**trunk**                  VLAN                  VLAN                  **switchport**

Ruijie(config-if)# **switchport mode trunk**

<b>switchport access</b>	statics accessport	VLAN
<b>switchport trunk</b>	trunkport Trunk	native VLAN VLAN

## switchport access

access port                  VLAN  
no                  VLAN

**switchport access vlan *vlan-id***  
**no switchport access vlan**

---

*vlan-id*                    VLAN    ID

switch port                access            VLAN    VLAN 1

                  VLAN ID                    VLAN ID

VLAN    VLAN

VLAN ID                    VLAN

  trunkport

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```



**switchport mode**



---

Protected is disabled  
Vlan lists is  
1,3-4094



**show interfaces**

Ruijie(config-if)# <b>snmp trap link-status</b>	link trap
Ruijie(config-if)# <b>no snmp trap link-status</b>	link trap

## line-detect

line-detect

### line-detect

line-detect

```
Ruijie(config)#interface gigabitEthernet 0/1
Ruijie(config-if-GigabitEthernet 0/1)#line-detect
```

```
Interface : GigabitEthernet 0/1
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state      length(meters)
-----
A   Ok          1
pair state      length(meters)
-----
B   Ok          2
pair state      length(meters)
-----
C   Short       1
pair state      length(meters)
-----
D   Short       1
```

---

pairs	



# Aggregate Port

## port-group

Aggregate Port no  
Aggregate Port

**port-group** *port-group-number*  
**no port-group**

Aggregate Port

<i>port-group-number</i>	Aggregate Port Aggregate Port

AP VLAN trunk port  
native VLAN AP

1/3 AP 3

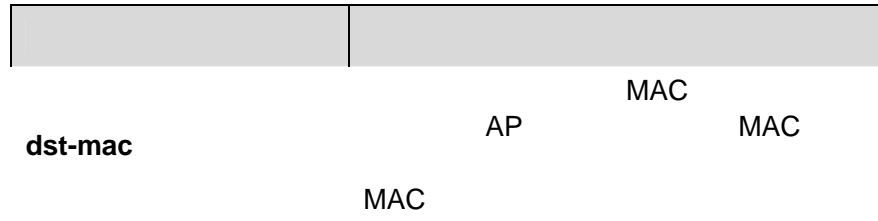
```
Ruijie(config)# interface gigabitethernet 1/3  
Ruijie(config-if)# port-group 3
```

## aggregateport load-balance

AP no

**aggregateport load-balance** {*dst-mac* | *src-mac* | *src-dst-mac* }

**no aggregateport load-balance**







**no name**

<i>vlan-name</i>	VLAN

VLAN

VLAN

**show vlan**          vlan

```
Ruijie(config)# vlan 10
Ruijie(config-vlan)# name vlan10
```

<b>show vlan</b>	VLAN

## switchport mode

access port          trunk port,          switch port          802.1Q          no

**switchport mode {access | trunk}**

**no switchport mode**

<b>access</b>	switch port    access port
<b>trunk</b>	switch port    trunk port

switch port          access



trunkport

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport access vlan 2
```

<b>switchport mode</b>	switch port
<b>switchport trunk</b>	trunkport native VLAN Trunk VLAN

### switchport trunk

trunkport native VLAN Trunk VLAN  
no trunk

**switchport trunk {allowed vlan { all | [add | remove | except] vlan-list } | native vlan vlan-id}**  
**no switchport trunk {allowed vlan | native vlan }**

	Trunk VLAN
	vlan-list VLAN
	VLAN ID VLAN ID
	VLAN ID -
	10-20 ,
	1-10,20-25,30,33
<b>allowed vlan vlan-list</b>	all VLAN
	VLAN
	add

**Native VLAN**

```

Trunk native VLAN native VLAN
      UNTAG          VLAN
VLAN ID IEEE 802.1Q PVID native
VLAN VLAN ID Trunk native VLAN
      UNTAG
  
```

**VLAN**

```

Trunk VLAN 1 4094
      Trunk VLAN VLAN
      Trunk
  
```

**show interfaces switchport**

```
VLAN 2 1/15
```

```

Ruijie(config)# interface fastethernet 1/15
Ruijie(config-if)# switchport trunk allowed vlan remove
2
Ruijie(config-if)# end
Ruijie# show interfaces fastethernet1/15 switchport
Switchport is1 TUuSed
Mode isltrunk port
Acsess vlan is11,Native vlan is11
Protected isldisUuSed
Vlan lists is1
1,3-4094
  
```

<b>show interfaces</b>	
<b>switchport access</b>	statics accessport VLAN

**show vlan**

VLAN

**show vlan [id *vlan-id*]**

<i>vlan-id</i>	VLAN ID

# PrivateVLAN

- ' **private-vlan type**
- ' **private-vlan association**
- ' **private-vlan mapping**
- ' **switchport mode private-vlan**
- ' **switchport private-vlan host-association**
- ' **switchport private-vlan mapping**

## private-vlan type

VLAN VLAN

**private-vlan** {*community* | *isolated* | *primary*}

**no private-vlan** {*community* | *isolated* | *primary*}

*community* community VLAN

*isolated* isolated VLAN

*primary* primary VLAN

*no* VLAN

VLAN

VLAN

```
Ruijie(config)# vlan 22
```

```
Ruijie(config-vlan)# private-vlan primary
```

**show vlan private-vlan**

RGOS10.1

## private-vlan association

secondary VLAN primary VLAN

**private-vlan association** {*svlist* | **add** *svlist* | **remove** *svlist*}

**no private-vlan association**

*svlist* secondary VLAN list

**no** primary VLAN secondary VLAN

Primary VLAN

```
Ruijie(config)# vlan 22
```

```
Ruijie(config-vlan)# private-vlan association add 24-26
```

**show vlan private-vlan**

RGOS10.1

## private-vlan mapping

secondary VLAN SVI

**private-vlan mapping** {*svlist* | **add** *svlist* | **remove** *svlist*}

**no private-vlan mapping**

*svlist* secondary VLAN list

**no**

Primary VLAN

```
Ruijie(config)# interface vlan 22
```

```
Ruijie(config-if)# private-vlan mapping add 24-26
```

## show vlan private-vlan

RGOS10.1

## switchport mode private-vlan

private VLAN

**switchport mode private-vlan**{host|promiscuous}

**no switchport mode**

**host** VLAN

**promiscuous** VLAN

**no** VLAN

```
Ruijie(config)# interface gigabitEthernet0/2
```

```
Ruijie(config-if)# switchport mode private-vlan host
```

## show vlan private-vlan

RGOS10.1

## switchport private-vlan host-association

private VLAN

primary VLAN

secondary VLAN

**switchport private-vlan host-association** *p\_vid s\_vid*

**no switchport private-vlan host-association**

*p\_vid*: primary VID

*s\_vid*: secondary VID

**no:** VLAN

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan host
Ruijie(config-if)# switchport private-vlan host-association 22 23
```

**show vlan private-vlan**

RGOS10.1

## switchport private-vlan mapping

private VLAN secondary VLAN

**switchport private-vlan mapping *p\_vid* {*svlist*|**add** *svist* |**remove** *svlist*}**

**no switchport private-vlan mapping**

*p\_vid* primary VID  
*svlist* secondary VLAN list  
**no** secondaryVLAN

secondary VLAN

VLAN

```
Ruijie(config)# interface gigabitEthernet 0/1
Ruijie(config-if)# switchport mode private-vlan
promiscuous
Ruijie(config-if)# switchport private-vlan mapping 22
add 23-25
```

**show vlan private-vlan**

RGOS10.1

' **show vlan private-vlan**

## show vlan private-vlan

private VLAN

**show vlan private-vlan [community | primary | isolated]**

<b>primary</b>	primary VLAN
<b>community</b>	community VLAN
<b>isolated</b>	isolated VLAN

private VLAN

Ruijie# **show vlan private-vlan**

RGOS10.1

## Hybrid

' **switchport mode hybrid**  
' **switchport hybrid native vlan**  
' **switchport hybrid allowed vlan**

## switchport mode hybrid

**switchport mode hybrid**

**no switchport mode**

hybrid

**no**

hybrid

Ruijie(config-if)# **switchport mode hybrid**

**no** ~~switchport mode hybrid~~

## switchport hybrid allowed vlan

```
switchport hybrid allowed vlan[[add][tagged | untagged] | remove]  
vlist
```

```
no switchport hybrid allowed vlan
```

```
    hybrid
```

```
no          hybrid
```

```
Ruijie(config-if)# switchport hybrid allowed vlan add  
untagged 3-5
```

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# MAC

- ' **mac-address-table aging-time**
- ' **clear mac-address-table dynamic**
- ' **clear mac-address-table filtering**
- ' **clear mac-address-table static**
- ' **mac-address-table static**
- ' **mac-address-table filtering**
- ' **mac-address-table notification**
- ' **nmp trap mac-notification**
- ' **address-bind**

## mac-address-table aging-time

no

**mac-address-table aging-time** *seconds*

**no mac-address-table aging-time**

*seconds*

300

**show mac-address-table aging-time**

**show mac-address-table dynamic**

Ruijie(config)# **mac-address-table aging-time** 150

<b>show mac-address-table aging-time</b>	
<b>show mac-address-table dynamic</b>	

## **clear mac-address-table dynamic**

**clear mac-address-table dynamic**[address *mac-addr*] [interface *interface-id*] [vlan *vlan-id*]

## clear mac-address-table filtering

**clear mac-address-table filtering** [**address** *mac-addr*][ **vlan** *vlan-id*]

<b>filtering</b>	
<b>address</b> <i>mac-addr</i>	
<b>vlan</b> <i>vlan-id</i>	VLAN

## show mac-address-table filtering

00d0.f800.0c0c

```
Ruijie# clear mac-address-table filtering address  
00d0.f800.0c0c
```

<b>mac-address-table filtering</b>	
<b>show mac-address-table filtering</b>	

## clear mac-address-table static

**clear mac-address-table static** [**address** *mac-addr*][**interface** *interface-id*][ **vlan** *vlan-id*]

<b>static</b>	
<b>address</b> <i>mac-addr</i>	
<b>interface</b> <i>interface-id</i>	
<b>vlan</b> <i>vlan-id</i>	VLAN

### show mac-address-table static

MAC 00d0.f800.073c

```
Ruijie# clear mac-address-table static address
00d0.f800.073c
```

<b>mac-address-table static</b>	
<b>show mac-address-table static</b>	

### mac-address-table static

**no**

**mac-address-table static** *mac-addr* **vlan** *vlan-id* **interface** *interface-id*

**no mac-address-table static** *mac-addr* **vlan** *vlan-id* **interface** *interface-id*

<i>mac-addr</i>	MAC
<i>vlan-id</i>	VLAN
<i>interface-id</i>	( AggregatePort)

%Hr ft H4w 8SHã H IÒ IÒ 2Hr fm H G m 2 G) ãn Hq 1e %2 Úf X)B K H (Ch G 42 PA 4 B, A, B, 5) 2010. 8. 10

**show mac-address-table filtering**

```
Ruijie(config)# mac-address-table filtering
00d0f8000000 vlan 1
```

<b>clear mac-address-table filtering</b>	
<b>show mac-address-table filtering</b>	

**mac-address-table notification**

MAC no

**mac-address-table notification** [interval *value* | history-size *value*]  
**no mac-address-table notification** [interval | history-size]

<b>interval</b> <i>value</i>	MAC Trap 1
<b>history-size</b> <i>value</i>	MAC 50

1

50

MAC Trap **snmp-server**  
**enable traps mac-notification** MAC Trap

```
Ruijie(config)# mac-address-table notification
Ruijie(config)# mac-address-table notification
interval 40
Ruijie(config)# mac-address-table notification
history-size 100
```

<b>snmp-server enable traps</b>	trap
<b>show mac-address-table notification</b>	MAC
<b>snmp trap mac-notification</b>	MAC

## snmp trap mac-notification

MAC

no

**snmp trap mac-notification {added | removed}**

**no snmp trap mac-notification {added | removed}**

<b>added</b>	
<b>removed</b>	

### **show mac-address-table notification** *interface*

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# snmp trap mac-notification added
```

<b>mac-address-table notification</b>	MAC
<b>show mac-address-table notification</b>	MAC

## address-bind

ip mac .

**address-bind** *ip-address mac-address*

**no address-bind** *ip-address*

<i>ip-address</i>	IP
<i>mac-address</i>	mac

```

IP          MAC          IP          IP
IP          MAC          IP
MAC

```

ip 3.3.3.3 mac 00d0.f811.1112

Ruijie(config)# **address-bind** 3.3.3.3 00d0.f811.1112

<b>show address-bind</b>	

## address-bind ip-address

ip mac .

**address-bind** *ip-address mac-address*

---

**no address-bind** *ip-address*

<i>ip-address</i>	IP
<i>mac-address</i>	mac

	IP	MAC	
IP	IP	MAC	IP
MAC			

ip 3.3.3.3 mac 00d0.f811.1112

Ruijie(config)# **address-bind** 3.3.3.3 00d0.f811.1112



MAC

---

	IP	MAC	
IP	IP	MAC	IP
MAC			
	( address-bind install)		

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- ' **show mac-address-table address**
- ' **show mac-address-table aging-time**
- ' **show mac-address-table count**
- ' **show mac-address-table dynamic**
- ' **show mac-address-table filtering**
- ' **show mac-address-table interface**
- ' **show mac-address-table notification**
- ' **show mac-address-table static**
- ' **show mac-address-table vlan**
- ' **show address-bind**
- ' **show mac-address-table mac-manage-learning**

## show mac-address-table address

MAC

**show mac-address-table** [**address** *mac-addr*] [**interface** *interface-id*]  
[**vlan** *vlan-id*]

<b>address</b> <i>mac-addr</i>	MAC
<b>interface</b> <i>interface-id</i>	
<b>vlan</b> <i>vlan-id</i>	VLAN

Ruijie# **show mac-address-table address 00d0.f800.1001**

Vlan	MAC Address	Type	Interface
-----	-----	-----	-----
1	00d0.f800.1001	STATIC	Gi1/1

<b>show mac-address-table static</b>	
<b>show mac-address-table filtering</b>	
<b>show mac-address-table dynamic</b>	
<b>show mac-address-table interface</b>	
<b>show mac-address-table vlan</b>	VLAN
<b>show mac-address-table count</b>	
<b>show mac-address-table static</b>	
<b>show mac-address-table filtering</b>	

## show mac-address-table aging-time

### show mac-address-table aging-time

```
Ruijie# show mac-address-table aging-time
Aging time      : 300
```

<b>mac-address-table aging-time</b>	

## show mac-address-table count

**show mac-address-table count**

```
Ruijie# show mac-address-table count  
Dynamic Address Count : 51  
Static Address Count : 0  
Filter Address Count : 0  
Total Mac Addresses : 51  
Total Mac Address Space Available: 8139
```

<b>show mac-address-table static</b>	

**show mac-address-table filtering**

A>le'NÀQ€<q:#4tPÄ

Ruijie# **show mac-address-table dynamic**

Vlan	MAC Address	Type	Interface
1	0000.0000.0001	DYNAMIC	gigabitethernet 1/1
1	0001.960c.a740	DYNAMIC	gigabitethernet 1/1
1	0007.95c7.dff9	DYNAMIC	gigabitethernet 1/1
1	0007.95cf.eee0	DYNAMIC	gigabitethernet 1/1
1	0007.95cf.f41f	DYNAMIC	gigabitethernet 1/1
1	0009.b715.d400	DYNAMIC	gigabitethernet 1/1
1	0050.bade.63c4	DYNAMIC	gigabitethernet 1/1

<b>clear mac-address-table dynamic</b>	

## show mac-address-table filtering

**show mac-address-table static [addr *mac-addr*] [vlan *vlan-id*]**

<i>mac-addr</i>	MAC
<i>vlan-id</i>	VLAN

MAC

---



**clear mac-address-table filtering**

MAC

---

<b>show mac-address-table count</b>	
-------------------------------------	--



---

**show mac-address-table vlan** [*vlan-id*]

<i>vlan-id</i>	VLAN ID

```
Ruijie# show mac-address-table vlan 1
Vlan    MAC Address      Type      Interface
-----  -
1       00d0.f800.1001   STATIC    gigabitethernet 1/1
1       00d0.f800.1002   STATIC    gigabitethernet 1/1
1       00d0.f800.1003   STATIC    gigabitethernet 1/1
```

<b>show mac-address-table static</b>	
<b>show mac-address-table filtering</b>	
<b>show mac-address-table dynamic</b>	
<b>show mac-address-table address</b>	
<b>show mac-address-table interface</b>	
<b>show mac-address-table count</b>	

**show address-bind**

**show address-bind**

```

Ruijie# show address-bind
Total Bind Addresses in System : 2
IP Address      Binding MAC Addr
-----
3.3.3.3        00d0.f811.1112
3.3.3.4        00d0.f811.1117

```

address-bind	

## show address-bind summary

address-bind install

### show address-bind summary

```

Ruijie# show address-bind summary
Total Bind Addresses in System : 0
Max Bind Addresses limit in System : 1000
System Address bind status:SUCCESS

```

address-bind	

## show address-bind [ip-address *ip* | mac-address *MAC*]

IP      MAC

show address-bind [ip-address *ip* | mac-address *MAC*]



# DHCP Snooping

## DHCP snooping

DHCP snooping

- ' **ip dhcp snooping**
- ' **ip dhcp snooping bootp-bind**
- ' **ip dhcp snooping verify mac-address**
- ' **ip dhcp snooping binding**
- ' **ip dhcp snooping database write-delay**
- ' **ip dhcp snooping database write-to-flash**
- ' **ip dhcp snooping information option**

## ip dhcp snooping

DHCP Snooping

no

DHCP snooping

**[no] ip dhcp snooping**

DHCP snooping

DHCP snooping

**show ip dhcp snooping**

DHCP snooping

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping
Ruijie(config)# end
Ruijie# show ip dhcp snooping
```



```
Ruijie# show ip dhcp snooping

Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                      Trusted
-----
FastEthernet0/11                yes
```

<b>show ip dhcp snooping</b>	DHCP snooping

### ip dhcp snooping verify mac-address

```
MAC
no          MAC
```

**[no] ip dhcp snooping verify mac-address**

```
MAC          DHCP CLIENT
MAC          DHCP   CLIENT MAC
MAC

DHCP        MAC
```

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping verify mac-address
Ruijie(config)# end
```

```
Ruijie# show ip dhcp snooping

Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                      Trusted
-----                      -
FastEthernet0/11                yes
```

<b>show ip dhcp snooping</b>	DHCP snooping

## ip dhcp snooping binding

```
DHCP snooping
no
```

```
[no] ip dhcp snooping binding mac-address vlan vlan-id ip
ip-address interface interface-id
```

```
mac-address          MAC
vlan-id              VLAN
ip-address           IP
interface-id
```

```
DHCP                      DHCP snooping
```

```
Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping binding 00d0.f801.0101
```

```
vlan 1 ip 192.168.4.243 interface fastethernet 0/1
Ruijie(config)# end
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1
MacAddress IpAddress Lease Type VLAN Interface
-----
00d0.f801.0101 192.168.1.1 - static 1 fastethernet 0/1
```

--	--

```

DHCP snooping Support Bootp bind status: ENABLE
Interface                Trusted
-----                -
FastEthernet0/11        yes
    
```

<b>show ip dhcp snooping</b>	DHCP snooping

### ip dhcp snooping database write-delay

```

                DHCP Snooping
FLASH                no
                FLASH
    
```

**ip dhcp snooping database write-delay *time***

**[no] ip dhcp snooping database write-delay**

```

time                DHCP snooping                FLASH
    
```

FLASH

```

                DHCP Snooping                FLASH
                                                IP
    
```

```

flash                3600
    
```

```

Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database write-delay
3600
Ruijie(config)# end
Ruijie# show ip dhcp snooping

Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  DISABLE
DHCP snooping database write-delay time: 0 seconds
    
```

```
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                               Trusted
-----                               -
FastEthernet0/11                         yes
```

<b>show ip dhcp snooping</b>	DHCP snooping

### ip dhcp snooping database write-to-flash

```
                                DHCP Snooping
FLASH
ip dhcp snooping database write-to-flash
```

```
                                DHCP Snooping
FLASH

                                DHCP                               flash

Ruijie# configure terminal
Ruijie(config)# ip dhcp snooping database
write-to-flash
Ruijie(config)# end
```

## DHCP snooping

DHCP snooping

**ip dhcp snooping trust**

**ip dhcp snooping address-bind**

## ip dhcp snooping trust

```
DHCP snooping          TRUST
                        no          UNTRUST
```

**[no] ip dhcp snooping trust**

UNTRUST

```
TRUST          DHCP          TRUST
DHCP          DHCP          UNTRUST
```

**fastethernet 0/1 TRUST**

Ruijie# **configure terminal**

Ruijie(config)# **interface fastethernet 0/1**

Ruijie(config-if)# **ip dhcp snooping trust**

Ruijie(config-if)# **end**

Ruijie# **show ip dhcp snooping**

```
Switch DHCP snooping status  ENABLE
Verification of hwaddr field status  DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                      Trusted
-----
```

FastEthernet0/11                      yes

<b>show ip dhcp snooping</b>	DHCP snooping

## ip dhcp snooping address-bind

no

**[no] ip dhcp snooping address-bind**

Snooping	MAC	IP	IP	VLAN ID	DHCP
----------	-----	----	----	---------	------

**fastethernet 0/1**

```
Ruijie# configure terminal
Ruijie(config)# interface fastethernet 0/1
Ruijie(config-if)# ip dhcp snooping address-bind
Ruijie(config-if)# end
```

## DHCP snooping

- ' **show ip dhcp snooping**
- ' **show ip dhcp snooping binding**



## show ip dhcp snooping binding

DHCP Snooping

### show ip dhcp snooping binding

DHCP Snooping

```
Ruijie# show ip dhcp snooping binding
Total number of bindings: 1
MacAddress      IpAddress Lease Type VLAN Interface
-----
00d0.f801.0101 192.168.1.1 - static 1 fastethernet 0/1
```

<b>ip dhcp snooping binding</b>	DHCP snooping
<b>clear ip dhcp snooping binding</b>	DHCP snooping

## DHCP snooping

DHCP Snooping

**clear ip dhcp snooping binding**

**debug ip dhcp snooping**

## **clear ip dhcp snooping binding**

DHCP Snooping DHCing

## DHCP snooping

### DHCP snooping

```
Ruijie# debug ip dhcp snooping event
```

```
Ruijie# debug ip dhcp snooping packet
```

# IGMP Snooping

**deny**

profile profile  
deny  
**deny**

<b>deny</b>	profile

profile deny

profile

profile range  
profile profile

profile  
deny permit

224.2.2.2 profile :

```
Ruijie(config)# ip igmp profile 1  
Ruijie(config-profile)# range 224.2.2.2  
Ruijie(config-profile)# deny
```

--	--

<b>ip igmp profile</b>	profile
<b>range</b>	

**permit**

profile  
profile

profile

permit

## range

```

profile                               profile                               range
no
range low-ip-address [high-ip-address]
no range low-ip-address [high-ip-address]

low-ip-address
high-ip-address

```

```

profile

deny                               profile                               profile
                               profile                               profile

                               224.2.2.2~224.2.2.244       profile       :

Ruijie(config)# ip igmp profile 1
Ruijie(config-profile)# range 224.2.2.2 224.2.2.244

```

<b>ip igmp profile</b>	profile	
<b>deny</b>	profile	deny
<b>permit</b>	profile	permit

## ip igmp profile

```

profile-number       igmp profile

```

**ip igmp profile** *profile-number*  
**no ip igmp profile** *profile-number*

*profile-number* profile 1-65535

profile

1 profile profile

Ruijie(config)# **ip igmp profile 1**  
 Ruijie(config-profile)#

<b>range</b>	profile
<b>ip igmp snooping filter</b> <i>profile-num</i>	

## ip igmp snooping filter

profile no profile

**ip igmp snooping filter** *profile-number*  
**no ip igmp snooping filter** *profile-number*

*Profile-number* profile

profile filter

0/1 profile 1

```
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip igmp snooping filter 1
```

ip igmp profile	profile

### ip igmp snooping ivgl

```

      igmp snooping          ivgl          ip
igmp snooping ivgl      no          igmp snooping
ip igmp snooping ivgl
no ip igmp snooping

```

disable

IGMP Snooping VLAN VLAN

igmp snooping ivgl

```
Ruijie(config)# ip igmp snooping ivgl
```

--	--



## ip igmp snooping max-groups

```

ip igmp snooping max-groups number
no ip igmp snooping max-groups

```

```

ip igmp snooping max-groups number
no ip igmp snooping max-groups

```

*number* 0 – 4294967294

### IGMP Report

0/1 100

```

Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip igmp snooping max-group 100

```

ip igmp snooping filter	

## ip igmp snooping vlan mrouter interface

```

ip igmp snooping vlan mrouter
no ip igmp snooping vlan mrouter

```

```
Ruijie(config)# ip igmp snooping vlan 1 mrouter interface  
fastEthernet 0/1
```

ip igmp snooping source-check port	

## ip igmp snooping vlan mrouter interface profile

VLAN

IGMP Profile

interface profile

```
ip igmp snooping vlan mrouter  
A
```

profile

profile

profile

```
Ruijie(config)# ip igmp snooping vlan 1 mrouter interface
fastEthernet 0/1 profile 1
```

ip igmp snooping vlan mrouter interface	

### ip igmp snooping vlan mrouter learn pim-dvmrp

IGMP query/dvmrp PIM

ip igmp snooping vlan mrouter

learn no

ip igmp snooping vlan *vid* mrouter learn pim-dvmrp

no ip igmp snooping vlan *vid* mrouter learn pim-dvmrp

*vid*

vlan id

igmp snooping

```
Ruijie(config)# ip igmp snooping vlan 1 mrouter learn
pim-dvmrp
```



**ip igmp snooping vlan *vid***  
**mrouter learr2w0 Td( )Tj/58vmrp1 Tf0 Tc 0 Tw 10.617 0 Td19Td/TT1 1 Tf-2 Tr 10.5 re**

**no ip igmp snooping vlan** *vid* **static** *ip-addr* **interface** *interface-id*

*vid*                      vlan id

*ip-addr*

*interface-id*          id

```
Ruijie(config)# ip igmp snooping vlan 1 static 224.0.0.2  
interface fastEthernet 0/1
```

<b>ip igmp snooping vlan mrouter interface</b>	

## ip igmp snooping fast-leave enable

                  igmp snooping fast-leave                      **ip igmp**  
**snooping fast-leave enable**                      no                      igmp snooping  
fast-leave

**ip igmp snooping fast-leave enable**  
**no ip igmp snooping fast-leave enable**

disable



## ip igmp snooping query-max-resposne-time

query

```
ip igmp snooping query-max-resposne-time time  
no ip igmp snooping query-max-resposne-time
```

*time*

10s

query

query

100s

```
Ruijie(config)# ip igmp snooping query-max-resposne-time 100
```

ip igmp snooping	

- ' show ip igmp snooping [gda-table | interface | mrouter ]
- ' show ip igmp profile [*profile-number*]
- ' debug igmp-snp



# MSTP

## spanning-tree

```
MSTP          MSTP          MSTP
              no           spanning-tree      no
                                           spanning tree
```

**spanning-tree** [ **forward-time** *seconds* | **hello-time** *seconds* |  
**max-age** *seconds* ]

**no spanning-tree** [**forward-time** | **hello-time** | **max-age**]

**forward-time** *seconds*

**hello-time** *seconds*                   BPDU

**max-age** *seconds*   BPDU

spanning-tree

**forward-time**   **hello-time**   **max-age**

$2 * (\text{Hello Time} + 1.0\text{snd}) \leq \text{Max-Age Time} \leq 2 * (\text{Forward-Delay} - 1.0\text{snd})$

spanning-tree

```
Ruijie(config)# spanning-tree
```

```
BridgeForwardDelay
```

```
Ruijie(config)# spanning-tree forward-time 10
```

```
show spanning-tree STP
```

```
spanning-tree mst cost STP PathCost
```

```
spanning-tree tx-hold-count STP TxHoldCount
```

## spanning-tree bpdudfilter

```
BPDU filter enabled  
disabled BPDU filter
```

```
spanning-tree bpdudfilter [enabled | disabled]
```

```
enabled - DA È â •Ð-` c(ind)1face gigabitethernetd-time  
BPDU filter
```

```
Disabled
```

**spanning-tree bpduguard [enabled | disabled]**

<b>enabled</b>	BPDU Guard
<b>disabled</b>	BPDU Guard

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# spanning-tree bpduguard enable
```

```
show spanning-tree interface STP
```

**spanning-tree link-type**

“ ” no

```
spanning-tree link-type [point-to-point | shared]
```

```
no spanning-tree link-type
```

```
point-to-point point-to-point.
```

```
Shared shared
```

```
shared point-to-point
```

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree link-type
point-to-point
```

```
show spanning-tree interface STP
```

## spanning-tree max-hops

Count	BPDU Instance	BPDU Region	Max-hops
		no	

```
spanning-tree max-hops hop-count
```

```
no spanning-tree max-hops
```

<i>hop-count</i>	BPDU		1	40
------------------	------	--	---	----

<i>hop-count</i>	20
------------------	----

Region	Root Bridge	BPDU	Hot Count
Root Bridge		Hop Count	1
BPDU		Hops	0
max-hops	Instance		

MST Instance	Max-hops	10
--------------	----------	----

```
Ruijie(config)# spanning-tree max-hops 10
```

```
show spanning-tree mst
```

```
show spanning-tree MSTP
```

## spanning-tree mode

STP no

**spanning-tree mode [stp | rstp | mstp]**

**no spanning-tree mode**

**stp** Spanning tree protocol(IEEE 802.1d)

**rstp** Rapid spanning tree protocol(IEEE 802.1w)

**mstp** Multiple spanning tree protocol(IEEE 802.1s)

MSTP

Ruijie(config)# **spanning-tree mode stp**

**show spanning-tree**

## spanning-tree mst configure

no MST MSTP Region  
name revision vlan map

**spanning-tree mst configuration**

**no spanning-tree mst configuration**

instance vlan Vlan Instance 0  
name  
revision 0

end Ctrl+C

exit

MST

<b>instance</b>	<i>instance-id</i>	<b>vlan</b>	<i>vlan-range</i>	<b>Vlan</b>	<b>MST Instance</b>
	<i>instance-id</i>		0 64	vlan	1 4095
	<i>vlan-range</i>	<i>vlan</i>		VLAN ID	
	VLAN ID	' '		MSTD2_0 1 Tf0 Tc 2.297 0 7CB<02C9>Tj4A2T0	

```
Ruijie(config-mst)# exit
Ruijie(config)#
          VLAN 3 Instance 1 MST
```

```
Ruijie(config-mst)# no instance 1 vlan 3
          Instance 1
```

```
Ruijie(config-mst)# no instance 1
          MST show
```

```
show spanning-tree mst MST region
instance instance-id vlan vlan-range Vlan MST Instance
```

```
name MST
revision MST
show MST MST
```

## spanning-tree mst cost

Instance no

```
spanning-tree [mst instance-id] cost cost
```

```
no spanning-tree [mst instance-id] cost
```

```
instance-id Instance 0 64
cost 1 200 000 000
```

```
Instance-ID 0
```

Interface

- 1000 Mbps—20000
- 100 Mbps—200000
- 10 Mbps—2000000

cost

Instance 3 400

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 3 cost 400
```

**show spanning-tree mst interface interface-id**

**show spanning-tree mst** MSTP

**spanning-tree mst port-priority**

**spanning-tree mst priority** instance

## spanning-tree mst port-priority

Instance

Region

no

**spanning-tree [mst *instance-id*] port-priority *priority***

**no spanning-tree [mst *instance-id*] port-priority**

<i>Instance-id</i>	Instance	0	64							
<i>priority</i>		0	16	32	48	64	80	96	112	
128	144	160	176	192	208	224	240	16		16

Instance-id 0

priority 128

Region

```

Instance 20    Gigabitethernet 1/1
10
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# spanning-tree mst 20 port-priority
0

```

**show spanning-tree mst instance interface *interface-id***

```

show spanning-tree mst           MSTP
spanning-tree mst cost
spanning-tree mst priority       Instance

```

## spanning-tree mst priority

```

Instance           no

spanning-tree [mst instance-id] priority priority
no spanning-tree [mst instance-id] priority

instance-id Instance           0 64

priority           0, 4096,8192, 12288, 16384, 20480,
24576, 28672, 32768, 36864, 40960, 45056, 49152,53248, 57344
61440 16           4096

instance-id           0

priority           32768

```

Instance 20 8192

Ruijie(config-if)# **spanning-tree mst 20 priority 8192**

**show spanning-tree mst instance interface interface-id**

**show spanning-tree mst** MSTP

**spanning-tree mst cost**

**spanning-tree mst port-priority** Instance

### spanning-tree reset

spanning-tree no

**spanning-tree reset**

Ruijie(config)# **spanning-tree reset**

**show spanning-tree** STP

**show spanning-tree interface** STP

### spanning-tree tx-hold-count

STP TxHoldCount BPDU

no

**spanning-tree tx-hold-count** *tx-hold-count*

### no spanning-tree tx-hold-count

*tx-hold-count* TxHoldCount 1 10

3

Ruijie(config)# **spanning-tree tx-hold-count 5**

**show spanning-tree** MSTP

### spanning-tree pathcost method

no

**spanning-tree pathcost method [long | short]**

**no spanning-tree pathcost method**

**long** 802.1t path-cost

**short** 802.1d path-cost

802.1T Path-cost

Ruijie(config-if)# **spanning-tree pathcost method long**

**show spanning-tree interface** STP

### spanning-tree portfast

Portfast disabled  
Portfast

**spanning-tree portfast [disabled]**

**disabled** Portfast

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# spanning-tree portfast
```

**show spanning-tree interface** STP

### spanning-tree portfast bpduguard default

BPDU guard no  
B1et3110.977 0 1871 Tf0.0008 Tc 0i3e48.a0.0011 Tc 307474BC1>]TJ/TT0

BPDU guard BPDU  
error-disabled **show spanning-tree**

```
Ruijie(config)# spanning-tree portfast bpduguard  
default
```

**show spanning-tree interface** STP

### **spanning-tree portfast bpdufilter default**

BPDU filter no BPDU  
filter  
**spanning-tree portfast bpdufilter default**  
**no spanning-tree portfast bpdufilter default**

BPDU filter

BPDU Filter BPDU **show**  
**spanning-tree**

```
Ruijie(config)# spanning-tree portfast bpdufilter  
default
```

**show spanning-tree interface** STP

## spanning-tree portfast default

Portfast no  
Portfast

**spanning-tree portfast default**

**no spanning-tree portfast default**

Portfast

```
Ruijie(config)# spanning-tree portfast default
```

```
show spanning-tree interface STP
```

## spanning-tree tc-protection tc-guard

tc-guard no tc-guard  
tc-guard tc

**spanning-tree tc-protection tc-guard**

```
Ruijie(config)# spanning-tree tc-protection tc-guard
```

## **spanning-tree tc-guard**

```
tc-guard no tc-guard  
tc-guard tc
```

```
spanning-tree tc-guard
```

```
no spanning-tree tc-guard
```

```
tc-guard
```

```
Ruijie(config-if)# spanning-tree tc-guard
```

## **spanning-tree guard root**

```
root guard no root guard  
root guard
```

```
spanning-tree guard root
```

```
no spanning-tree guard root
```

```
root guard
```

```
Ruijie(config-if)# spanning-tree guard root
```

## **spanning-tree loopguard default**

```
loop guard no loop guard  
loop guard bpdu
```

```
spanning-tree loopguard default
```

```
no spanning-tree loopguard default
```

```
loop guard
```



```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# spanning-tree autoedge disabled
```

```
show spanning-tree interface           STP
```

## **bpdu src-mac-check**

```
                bpdu  mac                no  
bpdu  mac  
bpdu src-mac-check H.H.H  
no bpdu src-mac-check
```

```
H.H.H                mac                bpdu  
no                    bpdu
```

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# bpdu src-mac-check 00d0.f800.1e2f
```

## **clear spanning-tree detected-protocols**

```
RSTP BPDU    BPDU  
clear spanning-tree detected-protocols [interface interface-id]
```

```
interface-id
```

```
Ruijie# clear spanning-tree detected-protocols
```

```
show spanning-tree interface          STP
```

**spanning-tree compatible enable**

MSTI

```
spanning-tree compatible enable
```

```
no spanning-tree compatible enable
```

```
Ruijie(config-if)#spanning-tree compatible enable
```

## show spanning-tree

```
show spanning-tree [summary | forward-time | hello-time |  
max-age | inconsistentports| tx-hold-count | pathcost method |  
max_hops]
```

```
summary          MSTP    instance
```

```
Inconsistentports
```

## show spanning-tree interface

STP

```
show spanning-tree interface interface-id [{bpdufilter | portfast |  
bpduguard | link-type } ]
```

*interface-id*

**bpdufilter**            bpdufilter

**portfast**            portfast

**bpduguard**           bpduguard

**link-type**            linktype

```
Ruijie# show spanning-tree interface gigabitethernet  
1/5
```

**spanning-tree bpdufilter**                    BPDU filter

**spanning-tree portfast**                    portfast

**spanning-tree bpduguard**                    BPDU guard

**spanning-tree link-type**

Instance



<b>switch</b>	
---------------	--

```
switch port    routed port          SPAN          SPAN
port           SPAN                      disabled
```

```
show monitor
```

```
SPAN
```

```
SPAN
```

```
1.
```

```
1
```

```
1
```

```
8
```

```
Ruijie(config)# no monitor session
```

**show monitor**

SPAN 1

```
Ruijie# show monitor session 1
sess-num: 1
src-intf:
GigabitEthernet 3/1 frame-type Both
dest-intf:
GigabitEthernet 3/8
```

<b>monitor session</b>	SPAN

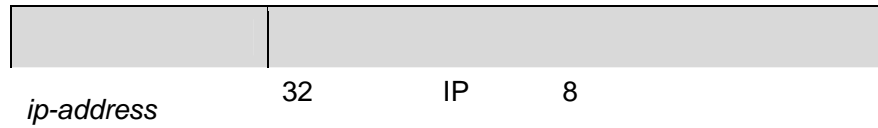
# IP

## ip address

IP no IP

**ip address** *ip-address network-mask*

**no ip address** *ip-address network-mask*



IP

---

```
                IP      10.10.10.1  
255.255.255.0
```

```
ip address 10.10.10.1 255.255.255.0
```



```
show interface
```

```

RGOS      ARP      32      IP      48
MAC

                ARP      ARP
      clear arp-cache      ARP

                ARP
arp 1.1.1.1 4e54.3800.0002 arpa
    
```

clear arp-cache	ARP

### arp retry interval

```

                arp      IP
      2  ARP      no
      1  ARP
    
```

**arp retry interval** *seconds*

**no arp retry interval**

<i>seconds</i>	<1-3600>,ARP 1 ---3600 1

```

ARP      1
    
```

```

                ARP
      ARP      ARP
    
```

ARP

30s

arp retry interval 30

Arp retry times <i>number</i>	ARP

## arp retry times

arp

IP

ARP

no

5 ARP

arp retry times *number*

no arp retry times

<i>number</i>	ARP	1	ARP
	1	ARP	<1-100>

<b>arp retry interval</b> <i>seconds</i>	arp

## arp trusted NUM

ARP no

**arp trusted** *number*

**no arp trusted**

<i>number</i>	ARP , <10-4096>

ARP ARP  
ARP

1000 ARP

arp trusted 1000

<b>service trustedarp</b>	ARP

## arp trusted aging

ARP no

**arp trusted aging**

**no arp trusted aging**

GSN ARP

ARP

ARP

**arp timeout**

<b>service trustedarp</b>	ARP

## arp unresolve

ARP  
8192

no

**arp unresolve** *number*

**no arp unresolve**

<i>number</i>	ARP 1-8192 > 8192 <

ARP

8192

IP

---

ARP

500

arp unresolved 500

## arp gratuitous-send interval

arp

no

**arp gratuitous-send interval** *seconds*

**no arp gratuitous-send**



```
Ruijie(config)# interface vlan 1
Ruijie(config-if)# no arp gratuitous-send
```

## arp timeout

```
ARP      ARP
no
```

```
arp timeout seconds
```

```
no arp timeout
```

seconds	0-2147483

```
3600
```

```
ARP      IP      MAC      ARP
      ARP
ARP
```

```
FastEthernet 0/0      ARP
```

```
120
```

```
interface fastEthernet 0/0
arp timeout 120
```

```
174.0 h43/TT0 -1e6Tf0 Tr 6/TT2 1
```

## IP

### clear arp-cache

ARP ARP IP  
clear arp-cache

**clear arp-cache** [A.B.C.D] | **interface** *interface-name*

RGOS  
RGOS  
RGOS

" UP"

" UP"

**show ip interface**

```
Ruijie# show ip interface FastEthernet 0/1  
IP interface state is: UP  
IP interface type is: BROADCAST
```

IP address is:	IP
IP address negotiate is:	IP
Forward direct-boardcast is:	
ICMP mask reply is:	ICMP
Send ICMP redirect is:	ICMP
Send ICMP unreachable is:	ICMP
DHCP relay is:	DHCP
Fast switch is:	IP
Route horizontal-split is:	
Help address is:	helper IP
Proxy ARP is:	ARP
Outgoing access list is	
Inbound access list is	

## show ip redirects

**show ip redirects**

### show ip redirects

```
Ruijie# show ip redirects  
Default Gateway: 192.168.195.1
```

--	--

<b>ip default-gateway</b>	
---------------------------	--

**ip default-gateway**

no

**ip default-gateway**

**no ip default-gateway**

**ip default-gateway**

# DHCP Relay

## DHCP Relay

DHCP

- ' **service dhcp**
- ' **ip helper-address**

## service dhcp

```
dhcp          DHCP          service
no           DHCP          DHCP
```

**service dhcp**

**no service dhcp**

DHCP

```
DHCP          DHCP          DHCP
DHCP          DHCP          DHCP
```

DHCP

service dhcp

<b>ip helper-address</b> <i>A.B.C.D</i>	DHCP server

## ip helper-address

DHCP no

DHCP

/

dhcp DHCP

61.154.26.49

ip helper-address 61.154.26.49

service dhcp	DHCP

## ip dhcp relay information option dot1x

dhcp option dot1x no  
dhcp option dot1x

DHCP relay 802.1x

```
Ip dhcp relay information option dot1x
```

<b>service dhcp</b>	DHCP
<b>ip dhcp relay information option dot1x access-group</b>	option dot1x acl

## ip dhcp relay information option dot1x access-group

```

                dhcp option dot1x acl          no
    dhcp option dot1x acl

```

ACL

ACL ACE

```
Ip dhcp relay information option dot1x access-group
acl-name
```

<b>service dhcp</b>	DHCP
<b>ip dhcp relay information option dot1x</b>	DHCP option dot1x

## ip dhcp relay information option82

```

no                ip dhcp relay information option82
                ip dhcp relay information option82

```

option dot1x

## ip dhcp relay suppression

```
DHCP          DHCP          no
              DHCP relay
```

```
DHCP request  relay
```

```
1 relay
```

```
Ruijie#
Ruijie# configure terminal
Ruijie(config)# interface fastEthernet 0/1
Ruijie(config-if)# ip dhcp relay suppression
Ruijie(config-if)# exit
Ruijie(config)#
```

**0/1**

# DNS

## ip domain-lookup

DNS

no

DNS

**ip domain-lookup**

**no ip domain-lookup**

DNS

DNS

DNS

DNS

Ruijie(config)# **ip domain-lookup**

<b>show hosts</b>	DNS

RGOS10.1

## ip name-server

IP

no

**ip name-server** *ip-address*

**no ip name-server** [*ip-address*]

<i>ip-address</i>	IP

DNS Server IP  
DNS Server Server  
Server DNS  
6 DNS Server  
ip-address DNS

Ruijie(config)# **ip name-server** 192.168.5.134

<b>show hosts</b>	DNS

<i>host-name</i>	
<i>ip-address</i>	IP

**no ip host host-name ip-address**

Ruijie(config)# **ip host switch 192.168.5.243**

<b>show hosts</b>	DNS

RGOS10.1

**clear host**

**clear host** [*host-name*]

<i>host-name</i>	***

DNS

1 ip host 2  
DNS



# SNTP

```
' sntp enable
' sntp server
' sntp interval
```

## sntp enable

```
SNTP no
—Disable
[no] sntp enable
```

```
SNTP Disable
```

```
show sntp SNTP
```

```
RedGiant(config)# sntp enable
```

show sntp	SNTP
clock update-calendar	
clock set	



*seconds* " " 60 --65535

1800s

**show sntp** SNTP

RedGiant(config)# **sntp interval 3600**

<b>sntp enable</b>	SNTP
<b>show sntp</b>	SNTP
<b>clock update-calendar</b>	

RGOS10.0

:

**show sntp**

**show sntp**

SNTP

**show sntp** SNTP

```
RedGiant# show sntp
SNTP state           : Enable
SNTP server          : 192.168.4.12
SNTP sync interval   : 60
Time zone            : +8
```

<b>sntp enable</b>	SNTP
<b>show sntp</b>	SNTP

RGOS10.0



NTP

---

ntp server	NTP

## ntp authenticate

NTP

NTP

## **ntp authentication-key**

NTP

NTP

## ntp disable

NTP

**ntp disable**

NTP

NTP

NTP

IP

NTP

no ntp

## ntp server

NTP

NTP

**ntp server** *ip-addr* [ **version** *version* ] [ **source** *if-name* ] [ **key** *keyid* ][**prefer**]

<i>version</i>	NTP 1-3 NTPv3
<i>if-name</i>	NTP
<i>keyid</i>	
<b>prefer</b>	Prefer

NTP

20

prefer

NTP  
IP

NTP

NTP server

ntp server 192.168.210.222

<b>no ntp</b>	NTP

## ntp synchronize

NTP

**ntp synchronize**

**no ntp synchronize**



```
ntp authentication-key 6 md5 woooooop
ntp trusted-key 6
ntp server 192.168.210.222 key 6
```

<b>ntp authenticate</b>	
<b>ntp authentication-key</b>	NTP
<b>ntp server</b>	NTP

- ' **debug ntp**
- ' **show ntp status**

### **debug ntp**

```
NTP
debug ntp
no debug ntp
```

NTP

NTP

NTP

---

debug ntp

## **show ntp status**

NTP

**show ntp status**

NTP

NTP

NTP

show ntp status

# SNMP

SNMP

```
' no snmp-server
' show snmp
' snmp-server chassis-id
' snmp-server community
' snmp-server contact
' snmp-server enable traps
' snmp-server host
' snmp-server location
' snmp-server packetsize
' snmp-server queue-length
' snmp-server system-shutdown
' snmp-server trap-source
' snmp-server trap-timeout
```

**no snmp-server**

SNMP

**no snmp-server**

**no snmp-server**

SNMP

SNMP

SNMP

Ruijie(config)# **no snmp-server**

## snmp-server chassis-id

```

SNMP
chassis-id no snmp-server
snmp-server chassis-id text
no snmp-server chassis-id

```

*text*

60FF60

SNMP

**show snmp**

SNMP 123456:

Ruijie(config)# **snmp-server chassis-id 123456**

<b>show snmp</b>	SNMP

## snmp-server community

```

SNMP
community no SNMP snmp-server
snmp-server community string [view view-name] [[ro | rw] [host
ipaddr] [ number ]
no snmp-server community string

```

*string* NMS SNMP

*view-name*

```

ro          NMS  MIB
rw          NMS  MIB
number     0-99
MIB  NMS
ipaddr     NMS          MIB  NMS
    
```

```

SNMP
MIB  NMS
SNMP          no snmp-server
    
```

```

MIB
192.168.12.1  NMS  MIB
Ruijie(config)# access-list 2 permit 192.168.12.1
Ruijie(config)# access-list 2 deny any
Ruijie(config)# snmp-server community public ro 2
    
```

access-list	

### snmp-server contact

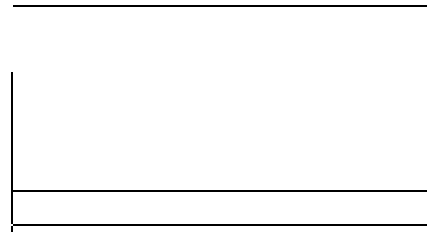
```

SNMP          snmp-server
contact       no          SNMP
snmp-server contact text
no snmp-server contact
text
    
```

SNMP

i-net800@i-net.com.cn

```
Ruijie(config)# snmp-server contact i-net800@i-net.com.cn
```



**snmp-server enable traps**      SNMP      NMS      Trap      **snmp-server enable traps**  
no      SNMP      NMS      Trap

**snmp-server enable traps [snmp ]**

**no snmp-server enable traps**

**snmp**      SNMP

**snmp-server**

SNMP

```
Ruijie(config)# snmp-server enable traps snmp
```

```
Ruijie(config)# snmp-server host public 2.219
```

---

**show snmp-server**

SNMP

<http://www.ruijie.com.cn>

snmp

snmp-server host	SNMP

## snmp-server host

SNMP NMS  
**snmp-server host** **no** SNMP  
**snmp-server host** *host-addr* **traps** [**version** {**1** | **2c** | **3** [**auth** | **noauth** | **priv**]}] *community-string* [**udp-port** *port-num*][*notification-type*]

**no snmp-server host** *host-addr*

*host-addr* SNMP

**version** snmp V1 V2C V3

**auth** | **noauth** | **priv** V3

*community-string* V3

*port-num* snmp

*notification-type* snmp

SNMP

## snmp-server enable traps

NMS

SNMP

vrf

[ vrf ]

SNMP

SNMP

```
Ruijie(config)# snmp-server host 192.168.12.219 public  
snmp
```

**no snmp-server packetsize**

*byte-count*                      484            17876

1500

SNMP                                      1492

Ruijie(config)# **snmp-server packetsize 1492**

<b>snmp-server queue-length</b>	SNMP

**snmp-server queue-length**

**snmp-server**

**queue-length**

**snmp-server queue-length *length***

*length*                                  1    1000

10

```
Ruijie(config)# snmp-server queue-length 4
```





```
md5 authpassstr priv des56 despassstr
```

show snmp user	SNMP

## snmp-server group

SNMP  
no

snmp-server group

```
snmp-server group groupname {v1 | v2c | v3 {auth | noauth | priv}}
[read readview][write writeview] [access {num | name}]
```

```
no snmp-server group groupname {v1 | v2c | v3 }
```

```
v1 | v2c | v3 (SNMP) | C_005072C838206 | 4074736280B4009819E7092836235
```

<b>show snmp group</b>	SNMP

## snmp-server view

```

SNMP                                snmp-server view
no
snmp-server view view-name oid-tree {include | exclude}
no snmp-server view view-name [oid-tree]

view-name
oid-tree          MIB          MIB
include           MIB
exclude           MIB

default          MIB

MIB-2    oid    1.3.6.1
Ruijie(config)# snmp-server view mib2 1.3.6.1 include

```

<b>show snmp view</b>	SNMP

## show snmp

```

SNMP                                show snmp
show snmp [mib | user | view | group]

```

**show snmp** SNMP  
**show snmp mib** snmp mib  
**show snmp user** snmp  
**show snmp view** snmp  
**show snmp group** snmp

### SNMP

```
Ruijie# show snmp  
Chassis: 60FF60  
0 SNMP packets input  
0 Bad SNMP version errors  
0 Unknown community name  
0 Illegal operation for community name supplied  
0 Encoding errors  
0 Number of requested variables  
0 Number of altered variables  
0 Get-request PDUs  
0 Get-next PDUs  
0 Set-request PDUs  
0 SNMP packets output  
0 Too big errors (Maximum packet size 1500)  
0 No such name errors  
0 Bad values errors  
0 General errors  
0 Response PDUs  
0 Trap PDUs  
SNMP global trap: disabled  
SNMP logging: disabled  
SNMP agent: enabled
```

<b>snmp-server</b> <i>chassis-id</i>	SNMP

# RMON

RMON

' **rmon collection stats** *index* [**owner** *owner-string*]

' **rmon collection history** *index* [**owner** *owner-string*] [**buckets**  
*bucket-number*] [**interval** *seconds*]

' **rmon alarm** *number* *variable* *interval* {**absolute** | **delta** }

**rising-threshold** *value* [*event-number*C0111G-nu4322 Td[(5a.ucket-num40)]TJ/TTTc

log-0.0005 Tc 0.28 0 Td(se( )0)]TJ/TT0 1 Tf0.0022 Tc 6.66

```
Ruijie(config-if)# rmon collection stats 1 zhansan
```

<b>rmon collection history</b> <i>index [owner owner-name]</i> <b>buckets</b> <i>bucket-number</i> <b>interval</b> <i>seconds</i>	

## rmon collection history

**no**

```
rmon collection history index [owner ownername] [buckets  

bucket-number] [interval seconds]  

no rmon collection history index
```

```
owner buckets interval  

RGOS
```

1

```
Ruijie(config)# interface fast-Ethernet 0/1  

Ruijie(config-if)# rmon collection history 1 zhansan  

buckets 10 interval 10
```

<b>rmon collection stats</b> <i>index</i> <b>[owner owner-name]</b>	

## rmon alarm

MIB no

**rmon alarm** *number variable interval* {**absolute** | **delta** }  
**rising-threshold** *value [event-number]* **falling-threshold** *value*  
*[event-number]* [**owner** *ownername*]  
**no rmon alarm** *number*

RGOS

variable	interval	absolute/delta	owner	interval
rising-threshold/falling-threshold			event	

MIB ifInNUcastPkts.6

```
Ruijie(config)# rmon alarm 10 1.3.6.1.2.1.2.2.1.12.6 30
delta rising-threshold 9.315 0 Td00 Td(rising-t30.377 -1.4
```

trap

```
Ruijie(config)# rmon event 1 log trap rmon description  
"ifInNUcastPkts is too much " owner zhangsan
```



```
rmon alarm number variable interval  
{absolute | delta } rising-threshold value  
[event-number] falling-threshold value  
[event-number] [owner ownername]
```

```

Octets : 1884085
Pkts : 3096
BroadcastPkts : 161
MulticastPkts : 97
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 1200
Fragments : 0
Jabbers : 0
Collisions : 0
Pkts64Octets : 128
Pkts65to127Octets : 336
Pkts128to255Octets : 229
Pkts256to511Octets : 3
Pkts512to1023Octets : 0
Pkts1024to1518Octets : 1200
Owner : zhangsan
    
```

<b>rmon collection stats</b> <i>index</i> [owner owner-string]	

## show rmon history

**show rmon history**

```

Ruijie# show rmon history
Entry : 1
Data source : Gil/1
Buckets requested : 65535
    
```

```

Buckets granted : 10
Interval : 1
Owner : zhangsan
Sample : 198
Interval start : 0d:0h:15m:0s
DropEvents : 0
Octets : 67988
Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
    
```

<b>rmon collection history</b> <i>index</i> <b>[owner</b> <i>ownername</i> <b>]</b> <b>[buckets</b> <i>bucket-number</i> <b>]</b> <b>[interval</b> <i>seconds</i> <b>]</b>	

## show rmon alarm

**show rmon alarm**

```

Ruijie# show rmon alarm
Event : 1
    
```

Description : firstevent  
Event type : log-and-trap  
Community : public  
Last time sent : 0d:0h:0m:0s  
Owner : zhangsan  
Log : 1  
Log time : 0d:0h:37m:47s  
Log description : ipttl  
Log : 2  
Log time : 0d:0h:38m:56s  
Log description : ipttl

Rising threshold : 10  
Falling threshold : 22  
Rising event : 0  
Falling event : 0  
Owner : zhangsan

<b>rmon event</b> <i>number</i> [ <b>log</b> ] [ <b>trap</b> <i>community</i> ] [ <i>description-string</i> ]	

---

```
' storm-control
' switchport protected
' switchport port-security
' switchport port-security aging
' switchport port-security mac-address
' port-security arp-check
```

## **storm-control**

**no**

```
storm-control {broadcast | multicast | unicast} [{level percent | pps
packets | rate-bps}]
```

```
no storm-control {broadcast | multicast}
```

---

---

```
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# switchport protected
```

show interfaces	

## switchport port-security

no

**switchport port-security [violation {protect | restrict | shutdown}]**

**no switchport port-security [violation]**

port-security	
violation protect	
violation restrict	trap
violation shutdown	Trap

IP( )  
)

MAC  
(

1

M

---

Gigabitethernet 1/1  
shutdown

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# switchport port-security  
Ruijie(config-if)# switchport port-security  
violation shutdown
```

show port-security	

## switchport port-security aging

no

switchport port-security aging {static | time time }

no switchport port-security aging {static | time }

Static	
time time	0 1440 0

no switchport port-security aging  
time no switchport  
port-security aging static



---

gigabitethernet 1/1  
00d0.f800.073c IP 192.168.12.202

```
Ruijie# configure terminal  
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# switchport mode access  
Ruijie(config-if)# switchport port-security  
Ruijie(config-if)# switchport port-security  
mac-address 00d0.f800.073c ip-address 192.168.12.202
```

<b>show port-security</b>	

## arp-check

ARP no

[no | default] arp-check [cpu | auto]

**cpu** CPU  
auto

Arp-check  
Arp arp

```
Ruijie(config-if)# arp-check
```

<b>show port-security</b>	

- 
- ' **show storm-control**
  - ' **show port-security**

## **show storm-control**

**show storm-control** [*interface-id*]

<i>interface-id</i>	

```
Ruijie# show storm-control gigabitethernet 1/1  
Interface Broadcast Control Multicast Control Unicast  
Control
```

```
-----  
Gi1/1 Disabled Disabled Disabled
```

<b>storm-control</b>	

## **show port-security**

---

**show port-security [address] [interface *interface-id*]**

<b>address</b>	
<b>interface <i>interface-id</i></b>	

```
Ruijie# show port-security
Secure Port MaxSecureAddr(count) CurrentAddr(count)
Security Action
-----
Gi1/1 128 1 Restrict
Gi1/2 128 0 Restrict
Gi1/3 8 1 Protect
```

<b>switchport port-security</b>	
<b>switchport port-security aging</b>	
<b>switchport port-security mac-address</b>	

# 802.1X

## dot1x

dot1x

' dot1x auto-req

' dot1x auto-req p

Packet-Num : 0  
Req-Interval: 30 Second

<b>show dot1x auto-req</b>	

## dot1x auto-req packet-num

no

**dot1x auto-req packet-num** *num*  
**no dot1x auto-req packet-num**

*num*

num = 0;

**show dot1x**

**auto-req**

802.1x

```
Ruijie# configure terminal  
Ruijie(config)# dot1x auto-req packet-num 0  
Ruijie(config)# end  
Ruijie# show dot1x auto-req
```

Auto-Req: Enabled  
User-Detect : Enabled  
Packet-Num : 0  
Req-Interval: 30 Second

--	--

<code>show dot1x auto-req</code>	
----------------------------------	--

## dot1x auto-req req-interval

**no**

`dot1x auto-req req-interval interval`

`no dot1x auto-req req-interval`

## dot1x auto-req user-detect

no

**dot1x auto-req user-detect**

**no dot1x auto-req user-detect**

### show dot1x auto-req

```
Ruijie# configure terminal  
Ruijie(config)# dot1x auto-req user-detect  
Ruijie(config)# end  
Ruijie# show dot1x auto-req
```

```
Auto-Req: Enabled  
User-Detect : Enabled  
Packet-Num : 0  
Req-Interval: 60 Second
```

<b>show dot1x auto-req</b>	

## dot1x

dot1x

' **dot1x timeout quiet-period**

```
' dot1x timeout re-authperiod  
' dot1x timeout server-timeout  
' dot1x timeout supp-timeout  
' dot1x timeout tx-period
```

## dot1x timeout quiet-period

**no**

```
dot1x timeout quiet-period seconds  
no dot1x timeout quiet-period
```

*seconds*

```
0 65535 s
```

10

**show dot1x**

1000s

```
Ruijie# configure terminal  
Ruijie(config)# dot1x timeout quiet-period 1000  
Ruijie(config)#
```

Re-authen Max: 3 times  
Maximum Request: 3 times  
Filter Non-RG Supp: Disabled  
Client Oline Probe: Disabled  
Eapol Tag Enable: Disabled  
Authorization Mode: Group Server

<b>show dot1x</b>	802.1x

### **dot1x timeout re-authperiod**

**no**

Re-authen Period: 1000 sec  
Quiet Timer Period: 1000 sec  
Tx Timer Period: 3 sec  
Supplicant Timeout: 3 sec  
Server Timeout: 5 sec  
Re-authen Max: 3 times  
Maximum Request: 3 times  
Filter Non-RG Supp: Disabled  
Client Oline Probe: Disabled  
Eapol Tag Enable: Disabled  
Authorization Mode: Group Server

<b>show dot1x</b>	802.1x

### **dot1x timeout server-timeout**

```

802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Disabled
Re-authen Period:   1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period:    3 sec
Supplicant Timeout: 3 sec
Server Timeout:     10 sec
Re-authen Max:      3 times
Maximum Request:    3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable:   Disabled
Authorization Mode:  Group Server

```

<b>show dot1x</b>	802.1x

## dot1x timeout supp-timeout

no

```

dot1x timeout supp-timeout seconds
no dot1x timeout supp-timeout

```

```

seconds                                0
65535

```

3

```

show dot1x

```

10s

```

Ruijie# configure terminal
Ruijie(config)# dot1x timeout supp-timeout 10
Ruijie(config)# end
Ruijie# show dot1x

```

```

802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Disabled
Re-authen Period:   1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period:    3 sec
Supplicant Timeout: 10 sec
Server Timeout:     10 sec
Re-authen Max:      3 times
Maximum Request:    3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable:   Disabled
Authorization Mode:  Group Server

```

<b>show dot1x</b>	802.1x

## dot1x timeout tx-period

no

```

dot1x timeout tx-period seconds
no dot1x timeout tx-period

```

```

seconds          0  65535

```

**show dot1x**

10s

```

Ruijie# configure terminal
Ruijie(config)# dot1x timeout tx-period 10
Ruijie(config)# end
Ruijie# show dot1x

```

```

802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Disabled
Re-authen Period:   1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period:    10 sec
Supplicant Timeout: 10 sec
Server Timeout:     10 sec
Re-authen Max:      3 times
Maximum Request:    3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable:   Disabled
Authorization Mode:  Group Server

```

<b>show dot1x</b>	802.1x

**dot1x**

- ' **dot1x re-authentication**
- ' **dot1x reauth-max**

**dot1x re-authentication**

no

**[no] dot1x re-authentication****show dot1x**

```
Ruijie# configure terminal
Ruijie(config)# dot1x re-authentication
Ruijie(config)# end
Ruijie# show dot1x
```

```
802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Enabled
Re-authen Period:   1000 sec
Quiet Timer Period: 1000 sec
Tx Timer Period:    10 sec
Supplicant Timeout: 10 sec
Server Timeout:     10 sec
Re-authen Max:      3 times
Maximum Request:    3 times
Filter Non-RG Supp: Disabled
Client Oline Probe: Disabled
Eapol Tag Enable:   Disabled
Authorization Mode:  Group Server
```

<b>show dot1x</b>	802.1x

## dot1x reauth-max

**no**

**dot1x reauth-max** *count*

**no dot1x reauth-max**

*count*

3

### show dot1x

```
Ruijie# configure terminal
Ruijie(config)# dot1x reauth-max 5
Ruijie(config)# end
Ruijie# show dot1x

802.1X Status:           Enabled
Authentication Mode:    EAP-MD5
Authed User Number:    0
Re-authen Enabled:     Enabled
Re-authen Period:      1000 sec
Quiet Timer Period:    1000 sec
Tx Timer Period:       10 sec
Supplicant Timeout:    10 sec
Server Timeout:        10 sec
Re-authen Max:         5 times
Maximum Request:       3 times
Filter Non-RG Supp:    Disabled
Client Oline Probe:    Disabled
Eapol Tag Enable:      Disabled
Authorization Mode:     Group Server
```

<b>show dot1x</b>	802.1x

## dot1x

- ' **dot1x probe-timer**
- ' **dot1x client-probe enable**

### dot1x probe-timer

```
dot1x probe-timer{interval | alive}interval
no dot1x probe-timer
```

**no**

**alive**

**interval**

*interval* hello

Hello 20

250

**show dot1x** 802.1x

hello 30 , 120

Ruijie# **configure terminal**

Ruijie(config)# **dot1x probe-timer interval 30**

Ruijie(config)# **dot1x probe-timer alive 120**



Server Timeout: 10 sec  
Re-authen Max: 5 times  
Maximum Request: 3 times  
Filter Non-RG Supp: Disabled  
Client Oline Probe: Enabled  
Eapol Tag Enable: Disabled  
Authorization Mode: Group Server

*list-name*

AAA

AAA

AAA

dot1x

```

AAA
enable AAA dot1x authentication auth
" AAA "

```

group radius

```

Ruijie# configure terminal
Ruijie(config)# aaa new-model
Ruijie(config)# aaa authentication dot1x default group
radius
Ruijie(config)# dot1x authentication default
Ruijie(config)# end
Ruijie#

```

aaa new-model	AAA
aaa authentication dot1x	

## dot1x accounting

AAA

AAA

no

```

dot1x accounting {default | list-name}
no dot1x accounting {default | list-name}

```

**default***list-name*

AAA default

AAA dot1x

enable AAA dot1x accounting aaa domain

AAA "

group radius

```
Ruijie# configure terminal  
Ruijie(config)# aaa new-model  
Ruijie(config)#aaa accounting network
```

802.1X

show dot1x

**auth-address table**

```

Ruijie# configure terminal
Ruijie(config)# dot1x auth-address-table address
00d0f8000000 interface ethernet 1/1
Ruijie(config)# end
Ruijie#

```

<b>show dot1x auth-address-table</b>	802.1X

**dot1x auth-mode**

802.1x

**dot1x auth-mode {eap-md5 | chap | pap}****no dot1x auth-mode****eap-md5** 802.1x EAP-MD5**chap** 802.1x CHAP**pap** 802.1x PAP

EAP-MD5

**show dot1x**

802.1x

802.1x

## dot1x dynamic-vlan enable

vlan no

```
dot1x dynamic-vlan enable
no dot1x dynamic-vlan enable
```

### show dot1x dynamic-vlan

802.1x vlan

```
Ruijie# configure terminal
Ruijie(config)# dot1x dynamic-vlan enable
Ruijie(config)# end
Ruijie#
```

show dot1x	802.1x

## dot1x eapol-tag

EAPOL TAG

```
dot1x eapol-tag
no dot1x eapol-tag
```

**show dot1x**

802.1X tag

```
Ruijie# configure terminal
Ruijie(config)# dot1x eapol-tag
Ruijie(config)# end
Ruijie#
```

<b>show dot1x</b>	802.1x

**dot1x max-req**

DOT1X

DOT1X

DOT1X

**no****dot1x max-req** *count***no dot1x max-req***count*

3

**show dot1x**

802.1x 7

Ruijie# **configure terminal**



```
dot1x port-control-mode {mac-based | port-based}  
no dot1x port-control-mode
```

```
mac-based      mac  802.1X
```

```
port-based      802.1X
```

```
mac-based
```

```
show dot1x port-control      802.1x
```

```
802.1x
```

```
Ruijie(config)#
```

## 802.1x

```
Ruijie# configure terminal
Ruijie(config)# dot1x stationarity enable
Ruijie(config)# end
Ruijie#
```

**dot1x**

```
' show dot1x
' show dot1x auth-address-table
' show dot1x auto-req
' show dot1x private-supPLICANT-only
' show dot1x max-req
' show dot1x port-control
' show dot1x probe-timer
' show dot1x re-authentication
' show dot1x reauth-max
' show dot1x summary
' show dot1x timeout
' show dot1x user id
```

**show dot1x**

802.1x

**show dot1x**

```
Ruijie# show dot1x
802.1X Status:      Enabled
Authentication Mode: EAP-MD5
Authed User Number: 0
Re-authen Enabled:  Disabled
Re-authen Period:   3600 sec
Quiet Timer Period: 10 sec
Tx Timer Period:    3 sec
Appendix
```

## 802.1X 认证失败原因

<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## show dot1x auto-req

802.1x

### show dot1x auto-req

```
Ruijie# show dot1x auto-req
```

```
Auto-Req: Disabled  
User-Detect : Enabled  
Packet-Num : 0  
Req-Interval: 30 Seconds  
Ruijie#
```

--	--



<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## show dot1x max-req

**show dot1x max-req**

```
Ruijie# show dot1x max-req  
max-req: 2 times
```

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## show dot1x port-control

**show dot1x port-control** [*interface interface*]

*interface*

```
Ruijie# show dot1x port-control  
interface dyn-user static-user max-user qos
```



```
Ruijie# show dot1x probe-timer
```

```
Hello Interval: 20 Seconds
```

```
Hello Alive: 250 Seconds
```

```
Ruijie#
```

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## **show dot1x re-authentication**

```
show dot1x re-authentication
```

```
Ruijie# show dot1x re-authentication
reauth-enabled: disabled
Ruijie#
```

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

**show dot1x reauth-max**

**show dot1x reauth-max**

```
Ruijie# show dot1x reauth-max  
reauth-max: 2 times  
Ruijie#
```

---

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	

```

Ruijie# show dot1x summary
ID      MAC          Interface VLAN Auth-State
Backend-State Port-Status Type
-----
-----
1 00d0f8000000 Gi0/1      1  Authenticated Idle
Authed   Static
Ruijie#

```

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## show dot1x user id

802.1X



<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	
<b>dot1x timeout quiet-period</b>	
<b>dot1x timeout re-authperiod</b>	
<b>dot1x timeout server-timeout</b>	
<b>dot1x timeout supp-timeout</b>	
<b>dot1x timeout tx-period</b>	

## show dot1x timeout

802.1X

**show dot1x timeout quiet-period**  
**show dot1x timeout re-authperiod**  
**show dot1x timeout server-timeout**  
**show dot1x timeout supp-timeout**  
**show dot1x timeout tx-period**

```
Ruijie# show dot1x timeout quiet-period  
quiet-period: 60 sec  
Ruijie#
```

<b>dot1x auth-mode</b>	802.1x
<b>dot1x max-req</b>	
<b>dot1x port-control auto</b>	
<b>dot1x reauth-max</b>	
<b>dot1x re-authentication</b>	

**dot1x timeout quiet-period**

802.1x  
802.1x

HTTP IP 172.16.0.1

```
Ruijie# configure terminal
Ruijie(config)# http redirect 172.16.0.1
Ruijie(config)# end
```

<b>show http redirect</b>	HTTP

## http redirect direct-site

**no**

```
http redirect direct-site ip-address [ip-mask] [arp]
no http redirect direct-site ip-address [ip-mask] [arp]
```

```
ip-address IP
ip-mask IP
arp ARP CHECK
ARP arp
```

802.1x

50

IP 172.16.0.1

```
Ruijie# configure terminal
Ruijie(config)# http redirect direct-site 172.16.0.1
```



**show http redirect**

HTTP

**http redirect port *port-num***

**no http redirect port *port-num***

80 HTTP

HTTP

HTTP

80 HTTP

PC

HTTP

10

80

PC

8080 HTTP

```
Ruijie# configure terminal
```

```
Ruijie(config)# http redirect port 8080
```

<b>show http redirect</b>	HTTP

## **http redirect session-limit**

*session-num* HTTP 1-10

HTTP 3

HTTP

TCP

HTTP

HTTP

HTTP

HTTP

1

HTTP 4

Ruijie# **configure terminal**

Ruijie(config)# **http redirect session-limit 4**

<b>show http redirect</b>	HTTP

## http redirect timeout

**no**

3

**http redirect timeout** *seconds*

**no http redirect timeout**

*seconds*

1-10

3

HTTP GET/HEAD                      HTTP  
GET/HEAD

TCP

4

```
Ruijie# configure terminal
Ruijie(config)# http redirect timeout 4
```

<b>show http redirect</b>	HTTP

## show http redirect

HTTP

**show http redirect**

HTTP

```
Ruijie# show http redirect
HTTP redirection settings:
  server:          192.168.32.123
  port:           80 8000
  homepage: http://192.168.32.123:8888/ePortal/index.jsp
  session-limit: 10
  timeout:        5
```

Direct sites:

Address	MASK	ARP Binding
-----	-----	-----

61.233.3.215	255.255.255.255	On
61.233.3.220	255.255.255.255	Off
192.168.5.140	255.255.255.255	Off
218.30.66.101	255.255.0.0	Off
218.30.66.101	255.255.255.255	Off



default

**aaa authentication {dot1x | enable | ppp | login} default group  
radius**

AAA

AAA

**aaa authentication**

RDS\_D1X AAA

RADIUS

RADIUS

Ruijie(config)# **aaa authentication dot1x rds\_d1x group  
radius local**

<b>aaa new-model</b>	AAA
<b>dot1x authentication</b>	DOT1x
<b>ppp authentication</b>	PPP
<b>login authentication</b>	Login
<b>username</b>	

RGOS





## RADIUS

```
Ruijie(config)# aaa accounting network start-stop group radius
```

<b>aaa new-model</b>	AAA
<b>aaa authorization network</b>	AAA
<b>aaa authentication</b>	AAA
<b>username</b>	

**aaa accounting update**

```
aaa accounting update  
no
```

```
aaa accounting update  
no aaa accounting update
```

AAA

AAA

```
Ruijie(config)# aaa new-model  
Ruijie(config)#
```

<b>aaa new-model</b>	AAA

**aaa accounting network**

## show aaa method-list

```
method-list EXEC show aaa  
show aaa method-list
```

EXEC

```
Ruijie# show aaa method-list
```

## AAA

```
AAA  
' aaa domain enable  
' aaa domain {default | WORD}  
' authentication  
' accounting  
' authorization  
' state {block | active}  
' username-format {without-domain | with-domain}  
' access-limit <1-1024>  
' show aaa domain [word]
```

## aaa domain enable

```
AAA AAA no  
aaa domain enable  
no aaa domain enable
```



AAA

---

Ruijie(config-domain)#

Show aaa domain	
-----------------	--

## accounting

no

**accounting { update | network } { default | *methodlist* }**

**no accounting { update | network }**

### default:

*methodlist*

default

```
Ruijie(config)# aaa domain ruijie.com
```

```
Ruijie(config-domain)# accounting network default
```

<b>aaa new-model</b>	AAA
<b>aaa domain enable</b>	AAA
<b>Show aaa domain</b>	

## authorization

no

**authorization { ip-auth-mode | network } { default | *methodlist* }**

**no authorization { ip-auth-mode | network }**



```
Ruijie(config)# aaa domain ruijie.com  
Ruijie(config-domain)# state block
```

<b>aaa new-model</b>	AAA
<b>aaa domain enable</b>	AAA
<b>Show aaa domain</b>	

## username-format

NAS

no

**username-format {without-domain | with-domain}**

**no username-format**

**without-domain:**

**with-domain**

NAS

```
Ruijie(config)# aaa domain ruijie.com  
Ruijie(config-domain)# username-domain without-domain
```

<b>aaa new-model</b>	AAA
<b>aaa domain enable</b>	AAA
<b>Show aaa domain</b>	

**access-limit <1-1024>**

1X

no

**access-limit <1-1024>****no access-limit**

&lt;1-1024&gt;:

802.1X

```
Ruijie(config)# aaa domain ruijie.com  
Ruijie(config-domain)# access-limit 20
```

<b>aaa new-model</b>	AAA
<b>aaa domain enable</b>	AAA
<b>Show aaa domain</b>	

## show aaa domain

EXEC **show aaa domain**

**show aaa domain** {Domain name|Default}

Domain name

**Default:**

EXEC

```
Ruijie(config)#show aaa domain ruijie.com
```

```
=====Domain ruijie.com=====
```

```
State: Active
```

```
Username format: Without-domain
```

```
Access limit: No limit
```

```
802.1X Access statistic: 0
```

```
Selected method list:
```

```
authentication login default
```

```
Ruijie(config)#
```

## AAA

- ' **show aaa group**
- ' **aaa group server**
- ' **server ip-addr authen-port port1 acct-port port2**
- ' **ip vrf forwarding**

## show aaa group

AAA

**show aaa group**

AAA

```
Ruijie# show aaa group
Group Name:  ss
Group Type:  radius
Referred:    2
Server List:
IP Address:  192.168.217.64
Authentication Port: 1812
Accounting Port: 1813
Referred:    1
Ruijie#
```

<b>aaa group server</b>	AAA

## aaa group server

AAA

no

**aaa group server radius *name***

**no aaa group server radius *name***

AAA

---

*name*

"radius" "tacacs+"

AAA

Radius

Ruijie(config)#

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
acct-port 5 authen-port 6
Ruijie(config-gs-radius)# end
Ruijie# show aaa group
Group Name: ss
Group Type: radius
Referred: 2
Server List:
IP Address: 192.168.4.12
Authentication Port: 6
Accounting Port: 5
Referred: 1
Ruijie#
```

<b>aaa group server</b>	aaa
<b>show aaa group</b>	aaa

## ip vrf forwarding

AAA vrf no

**ip vrf forwarding** *vrf\_name*

**no ip vrf forwarding**

*vrf\_name* vrf

vrf

```
Ruijie(config)# aaa group server radius ss
Ruijie(config-gs-radius)# server 192.168.4.12
Ruijie(config-gs-radius)# server 192.168.4.13
Ruijie(config-gs-radius)# ip vrf forwarding vrf_name
Ruijie(config-gs-radius)# end
Ruijie#
```

<b>aaa group server</b>	aaa
<b>show aaa group</b>	aaa

## AAA

- ' **aaa new-model**
- ' **debug aaa**
- ' **show aaa method-list**
- ' **aaa local authentication attempts**
- ' **aaa local authentication lockout-time**
- ' **show aaa user lockout**
- ' **clear aaa local user lockout**

### aaa new-model

RGOS    AAA

AAA

---

AAA  
**aaa new-model** AAA AAA AAA

AAA  
Ruijie(config)# **aaa new-model**

<b>aaa authentication</b>	

## **debug aaa**

AAA no  
**debug aaa**  
**no debug aaa**

EXEC

## **show aaa method-list**

AAA  
**show aaa method-list**

AAA

AAA

```
Ruijie# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local group angel group
rain none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorizing network default group radius
Ruijie#
```



login

Ruijie#**configure terminal**

Ruijie(config)#**aaa local authentication attempts 6**

Ruijie0(config)#

<b>Show running-config</b>	
<b>Show aaa lockout</b>	login

## aaa local authentication lockout-time

login

**aaa local authentication lockout-time** <1-2147483647>

<1-2147483647>

15

login



<b>Show running-config</b>	
<b>Show aaa lockout</b>	login

## show aaa user lockout

**show aaa user lockout {all | user-name <word>}**

ID

Ruijie# clear aaa local user lockout all

<b>Show running-config</b>	
<b>Show aaa lockout</b>	login

# RADIUS

## RADIUS

RADIUS

- ' **ip radius source-interface**
- ' **radius-server host**
- ' **radius-server key**
- ' **radius-server retransmit**
- ' **radius-server timeout**
- ' **radius-server dead-time**
- ' **radius attribute**
- ' **radius set qos cos**
- ' **radius vendor-specific extend**

## ip radius source-interface

```
radius source-interface no ip radius RADIUS
ip radius source-interface interface
no radius source-interface
```

*Interface* radius

radius

```
radius nas
radius ip
radius
```

```

radius                radius    fastEthernet 0/0    ip
radius
Ruijie(config)# ip radius source-interface
fastEthernet 0/0
    
```

<b>radius-server host</b>	RADIUS
<b>ip address</b>	ip

### radius-server host

```

RADIUS                                radius-server
no                                    RADIUS

radius-server host {hostname | ip-address} [auth-port port-number]
[acct-port port-number][key 0-7 text]
no radius-server host {hostname | ip-address}
    
```

```

hostname: RADIUS                    DNS
ip-address: RADIUS                  IP
auth-port: RADIUS                   UDP
port-number: RADIUS                 UDP          0

acct-port: Radius                   UDP
port-number: RADIUS                 UDP          0

text
0
7
    
```

RADIUS

RADIUS AAA  
**radius-server**

RADIUS  
RADIUS

0 7 0  
0

7

**service password-encryption**

```

RADIUS
RADIUS
RADIUS
radius-server host ip key
0 7 0
0
service password-encryption RADIUS
7 show running RADIUS
show running RADIUS
RADIUS
aaa
Ruijie(config)#radius-server key aaa
    
```

radius-server host	RADIUS
radius-server retransmit	RADIUS
radius-server timeout	RADIUS

### radius-server retransmit

```

RADIUS
radius-server retransmit no
radius-server retransmit retries
no radius-server retransmit
    
```

*retries* RADIUS

3

AAA

RADIUS

4

Ruijie(config)# **radius-server retransmit 4**

<b>radius-server host</b>	RADIUS
<b>radius-server key</b>	RADIUS
<b>radius-server timeout</b>	RADIUS

## radius-server timeout

RADIUS

**radius-server timeout no**

**radius-server timeout *seconds***

**no radius-server timeout**

*seconds*

1-1000

5

10

```
Ruijie(config)# radius-server timeout 10
```

radius-server host	RADIUS
radius-server retransmit	RADIUS
radius-server key	RADIUS

## radius-server deadtime

```

t
t      t      RGOS      RADIUS
      deadtime
      radius-server deadtime
no
radius-server deadtime minutes
no radius-server deadtime

minutes      1-1000

5

```

10

```
Ruijie(config)# radius-server deadtime 10
```



<b>radius-server host</b>	RADIUS
<b>radius-server retransmit</b>	RADIUS
<b>radius-server key</b>	RADIUS
<b>radius-server timeout</b>	RADIUS

## **radius attribute**

**radius ttribute{<id> | down-rate-limit | dscp | mac-limit |  
up-rate-limit}**

RADIUS

---

15	file-name-4	15
----	-------------	----

19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42
24	limit to user number	50

max up-rate 211

Ruijie(config)# radius attribute 16 vendor-type 211

radius set qos cos	radius qos cos

### radius set qos cos

radius qos cos

**radius set qos cos**

**no radius set qos cos**

qos dscp

qos          cos          dscp

Ruijie(config)# **radius set qos cos**

<b>radius vendor-specific extend</b>	Radius id

## radius vendor-specific extend

id

**radius vendor-specific extend**

**no radius vendor-specific extend**

id

id

Ruijie(config)# **radius vendor-specific extend**

<b>radius attribute</b>	
<b>radius set</b>	qos          cos

## RADIUS

- ' **debug radius [event | detail]**
- ' **show radius server**
- ' **show radius parameter**
- ' **show radius vendor-specific**

## debug radius

RADIUS no RADIUS

- debug radius [event | detail]**
- no debug radius [event | detail]**

EXEC

## show radius server

RADIUS

**show radius server**

radius

```
Ruijie# show radius server  
server ip : 192.168.4.12  
acct port: 23
```

RADIUS

---

authen port: 77

---

<b>radius-server host</b>	RADIUS
<b>radius-server retransmit</b>	RADIUS
<b>radius-server key</b>	RADIUS
<b>radius-server timeout</b>	RADIUS

## show radius vendor-specific

RADIUS

### show radius vendor-specific

radius

```
Ruijie# show radius vendor-specific
id   vendor-specific      type-value
-----
 1   max down-rate        76
 2   qos                  77
 3   user ip              3
 4   vlan id              4
 5   version to client    5
 6   net ip               6
 7   user name            7
 8   password             8
 9   file-directory       9
10   file-count           10
11   file-name-0          11
12   file-name-1          12
13   file-name-2          13
14   file-name-3          14
15   file-name-4          15
```

## RADIUS

---

16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilige	22
23	login privilige	42
24	limit to user number	50

<b>radius-server host</b>	RADIUS
<b>radius-server retransmit</b>	RADIUS
<b>radius-server key</b>	RADIUS
<b>radius-server timeout</b>	RADIUS

# TACACS+

## TACACS+

TACACS+

```
' aaa group server tacacs+  
' ip tacacs source-interface  
' ip vrf forwarding(TACACS+)  
' server(TACACS+)  
' tacacs-server host  
' tacacs-server key  
' tacacs-server timeout
```

## aaa group server tacacs+

TACACS+

TACACS+

```
aaa group server tacacs+ group-name  
no aaa group server tacacs+ group-name
```

```
group-name TACACS+
```

TACACS+

TACACS+

```
tac1 TACACS+  
1.1.1.1 TACACS+  
Ruijie(config)# aaa group server tacacs+ tac1
```

```
Ruijie(config-gs-tacacs+)# server 1.1.1.1
```

<b>server</b>	TACACS+	server
<b>ip vrf forwarding</b>	TACACS+	VRF

### **server(TACACS+)**

TACACS+

**server** *ip-address*

**no server** *ip-address*

*ip-address* TACACS+

TACACS+

**aaa group server tacacs+**

TACACS+

TACACS+

**tacacs-server host**

<b>ip vrf forwarding</b>	TACACS+	VRF
--------------------------	---------	-----

## ip vrf forwarding(TACACS+)

```

TACACS+
)

```

```

ip vrf forwarding vrf-name

```

```

no ip vrf forwarding

```

```

vrf-name vrf

```

```

TACACS+

```

```

TACACS+ vrf

```

```

TACACS+ VRF vpn1

```

```

Ruijie(config)# aaa group server tacacs+ tac1

```

```

Ruijie(config-gs-radius)# server 1.1.1.1

```

```

Ruijie(config-gs-radius)# ip vrf forwarding vpn1

```

<b>aaa group server tacacs+</b>	TACACS+
<b>server</b>	TACACS+ server

*Interface* TACACS+

TACACS+

TACACS+ nas  
TACACS+  
ip TACACS+

TACACS+ fastEthernet 0/0 ip  
TACACS+

Ruijie(config)# **ip tacacs source-interface fastEthernet**  
**0/0**

R06D! r T R0A c s c r

TACACS+ AAA  
**tacacs-server**

TACACS+  
TACACS+



TACACS+

---

<b>tacacs-server key</b>	TACACS+
--------------------------	---------

## TACACS+

```
' debug tacacs+'  
,
```

TACACS+

---

Socket Closes: 0  
Total Packets Sent: 0  
Total Packets Recv: 0  
Reference Count: 0

<b>tacacs-server host</b>	TACACS+



---

**no crypto key generate**

**crypto key zeroize**

---

Ruijie# **configure terminal**  
 Ruijie(config)# **crypto key generate rsa**

<b>show ip ssh</b>	SSH Server
<b>crypto key zeroize {rsa   dsa}</b>	DSA    RSA SSH Server

RGOS10.1

## crypto key zeroize

SSH

**crypto key zeroize {rsa / dsa}**

<b>rsa</b>	RSA
<b>dsa</b>	DSA

DISABLE                      SSH Server                      SSH Server  
**service ssh-server**                      **no enable**

```
Ruijie# configure terminal
Ruijie(config)# crypto key zeroize rsa
```

<b>show ip ssh</b>	SSH Server
<b>crypto key generate {rsa dsa}</b>	DSA RSA

RGOS10.1

## ip ssh version

SSH server no

```
ip ssh version {1 / 2}
no ip ssh version
```

<b>1</b>	SSH Server	SSH1
<b>2</b>	SSH Server	SSH2

```
SSH SSH 1 2
no ip ssh version
```

```
SSH Server SSH
SSH Server SSH1 SSH2 SSH 1
SSH 2 1 2
SSH show ip ssh SSH Serv
er
```



<b>show ip ssh</b>	ssh-server

RGOS10.1

**ip ssh authentication-retries**

SSH Server

no

**ip ssh authentication-retries** *retry times***no ip ssh authentication-retries**

<i>retry times</i>	

3

**no ip ssh****authentication-retries**

SSH Server

SSH

Server

**show ip ssh**

SSH Server

2

Ruijie# **configure terminal**Ruijie(config)# **ip ssh ssh authentication-retries 2**

<b>show ip ssh</b>	SSH Server



<b>Ip ssh authentication-retries retry times</b>	SSH Server
--	------------

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**show ssh**

SSH

**show ssh**

SSH

VTY

SSH

Ruijie# **show ssh**

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**show crypto key mypubkey**

SSH Server

**show crypto key mypubkey {rsa/dsa}**

--	--

<b>rsa</b>	RSA
<b>dsa</b>	DSA

## SSH Server

Ruijie# **show crypto key mypubkey rsa**

<b>crypto key generate {rsa   dsa}</b>	DSA RSA

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**disconnect ssh**

SSH

**disconnect ssh [vty] *session-id***

<i>session-id</i>	SSH



# DAI

## VLAN DAI

```
ip arp inspection vlan
```

### ip arp inspection vlan vlan-id

```

          vlan-id          VLAN DAI
no          vlan-id          VLAN DAI
          vlan-id          VLAN DAI

```

```
ip arp inspection vlan vlan-id
```

```
no ip arp inspection vlan [vlan-id]
```

<i>vlan-id</i>	vlan

```
VLAN DAI
```

```
DAI
```

```
VLAN 1 ARP
```

```
Ruijie(config)# ip arp inspection
```

```
Ruijie(config)# ip arp inspection vlan 1
```

--	--

<b>show ip arp inspection vlan</b>	VLAN	DAI
------------------------------------	------	-----

## ip arp inspection trust

**trust no ip arp inspection trust**

**no ip arp inspection trust**

**ip arp inspection**

ARP

DAI

ARP

gigabitEthernet 0/19

Ruijie(config)# **interface gigabitEthernet 0/19**Ruijie(config-if)# **ip arp inspection trust**

<b>show ip arp inspection interface</b>	DAI

## ARP

**ip arp inspection limit-rate**

## ip arp inspection limit-rate limit-rate

```

                                ARP                                ip arp
inspection limit-rate          no
ip arp inspection limit-rate {limit-rate | none }
no ip arp inspection limit-rate

```

none		
limit-rate	2048	1

```

                                15 ARP /
0

```

DAI

```

                                VLAN 2          gigabitEthernet 0/2
10 ARP /
Ruijie(config)# ip arp inspection
Ruijie(config)# interface gigabitEthernet 0/2
Ruijie(config-if)# ip arp inspection limit-rate 10

```

## DHCP Snooping

```

                                VLAN          DAI          ARP
                                DHCP Snooping .
                                DHCP Snooping          DHCP
Snooping

```

arp

---

**arp**

**arp**

arp

**anti-arp-spoofing ip**

**anti-arp-spoofing ip**



**Ruijie(config)#tag-support enable**

# ACL

time-range tm-rng-name	tm-rng-name
tos tos	0-15
cos cos	cos (0-7)
cos inner cos	tag cos
icmp-type	ICMP 0-255
icmp-code	ICMP 0-255
icmp-message	ICMP
operator port[port]	Operator lt- eq- gt- neq- range- port
src-mac-addr	
dst-mac-addr	
VID vid	vlan id
VID inner vid	tag vid
ethernet-type	0x
match-all tcpf	tcp flag

text

E	DSAP( )	18	S	ip	42
F	SSAP( )	19	T	TCP	46
G	Ctrl	20	U	TCP	48
H	Org Code	21	V		50
I		24	W		54
J	IP	26	XY	IP	58
K	TOS	27	Z	flags	59
L	IP	28	a	Windows size	60
M	ID	30	b		62
N	Flags	32			

SNAP tag 802.3

- ' **access-list**
- ' **ip access-list**
- ' **mac access-list**
- ' **ipv6 access-list**
- ' **ip access-list resequence**

ACL

- ' **deny**
- ' **permit**
- ' **list-remark text**
- ' **no sn**
  
- ' **ip access-group**
- ' **mac access-group**
- ' **ipv6 traffic-filter**

**access-list**

**no**

1) 1 IP 1 - 99 1300 - 1999

**access-list**

*source-wildcard* | **host** *source* | **any** } {**host** *source-mac-address* | **any** }  
 {*destination destination-wildcard* | **host** *destination* | **any** } {**host**  
*destination-mac-address* | **any** } [ *icmp-type* ] [ [ *icmp-type* [ *icmp-code* ] ]  
 | [ *icmp-message* ] ] [**precedence** *precedence*] [**tos** *tos*] [**fragments**]  
 [**time-range** *time-range-name*]

#### Transmission Control Protocol (TCP)

**access-list** *id* {**deny** | **permit**} **tcp** [**VID** [*out*][*inner in*]] {*source*  
*source-wildcard* | **host** *Source* | **any** } {**host** *source-mac-address* | **any** }  
 [**operator** *port* [*port*] ] {*destination destination-wildcard* | **host**  
*destination* | **any** } {**host** *destination-mac-address* | **any** } [**operator** **port**  
 [*port*] ] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range**  
*time-range-name*] [**match-all** *tcp-flag*]

#### User Datagram Protocol (UDP)

**access-list** *id* {**deny** | **permit**} **udp**[**VID** [*out*][*inner in*]] {*source* *source*  
 -*wildcard* | **host** *source* | **any** } {**host** *source-mac-address* | **any** }  
 [ **operator** **port** [*port*] ] {*destination destination-wildcard* | **host**  
*destination* | **any** } {**host** *destination-mac-address* | **any** } [**operator** **port**  
 [*port*] ] [**precedence** *precedence*] [**tos** *tos*] [**fragments**] [**time-range**  
*time-range-name*]

5)

**access-list** *list-remark text*

*id* 1-99 100-199 1300-1999  
 2000-2699 2700 - 2899 700 - 799

**deny**

**permit**

**source**

*source-wildcard* 0.255.0.32

*protocol* IP EIGRP GRE IPINIP IGMP  
 NOS OSPF ICMP UDP TCP IP IP  
 0-255 ICMP/TCP/UDP

**destination**

*destination-wildcard*

0.255.0.32

**fragments**

**precedence**

*precedence* 0-7  
**time-range**  
*time-range-name*  
**tos**  
*tos* 0-15  
*icmp-type* ICMP 0-255  
*icmp-code* ICMP 0-255  
*icmp-message* ICMP  
*operator* lt- eq- gt- neq- range-  
  
**port** [ *port* ] *range*  
  
**host** *source-mac-address*  
**host** *destination-mac-address*  
**VID** *vid* *vid*  
*ethernet-type*  
**match-all** *tcp flag*  
*tcp-flag* tcp flag

## ACL

## access-list

IP 1-99 1300-1999  
 IP 100-199 2000-2699  
  
 MAC 700-799 MAC  
 Expert 2700-2899  
 VLAN ID  
 TCP Flag  
 ' urg  
 ' ack  
 ' psh  
 ' rst

' **syn**

' **fin**

' **critical**

' **flash**

' **flash-override**

' **immediate**

' **internet**

' **network**

' **priority**

' **routine**

' **max-reliability**

' **max-throughput**

' **min-delay**

' **min-monetary-cost**

' **normal**

ICMP

' **administratively-prohibited**

' **dod-host-prohibited**

' **dod-net-prohibited**

' **echo**

'

,

' net-redirect  
' net-tos-redirect  
' net-tos-unreachable  
' net-unreachable  
' network-unknown  
' no-room-for-option  
' option-missing  
' packet-too-big  
' parameter-problem  
' port-unreachable  
' precedence-unreachable  
' protocol-unreachable  
' redirect  
' router-advertisement  
' router-solicitation  
' source-quench  
' source-route-failed  
' time-exceeded  
' timestamp-reply  
' timestamp-request  
' ttl-exceeded  
' unreachable

TCP

TCP

' bgp  
' chargen  
' cmd  
' daytime  
' discard  
' domain  
' echo  
' exec  
' finger  
' ftp  
' ftp-data  
' gopher  
' hostname  
' ident

---

```
'  irc
'  klogin
'  kshell
'  login
'  nntp
'  pim-auto-rp
'  pop2
'  pop3
'  smtp
'  sunrpc
'  syslog
'  tacacs
'  talk
'  telnet
'  time
'  uucp
'  whois
'  www
      UDP          UDP
'
'  biff
'  bootpc
'  bootps
'  discard
'  dnsix
'  domain
'  echo
'  isakmp
'  mobile-ip
'  nameserver
'  netbios-dgm
'  netbios-ns
'  netbios-ss
'  ntp
'  pim-auto-rp
'  rip
'  snmp
'  snmptrap
```

---

```
' sunrpc
' syslog
' tacacs
' talk
' tftp
' time
' who
' xdmcp

Ethernet-type
```

```
' aarp
' appletalk
' decnet-iv
' diagnostic
' etype-6000
' etype-8042
' lat
' lavc-sca
' mop-console
' mop-dump
' mumps
' netbios
' vines-echo
' xns-idp
```

## 1) IP

```
IP 192.168.1.64 - 192.168.1.127
```

```
Ruijie(config)# access-list 1 permit 192.168.1.64
0.0.0.63
```

## 2) IP

```
IP DNS ICMP
```

```
Ruijie(config)# access-list 102 permit tcp any any eq
domain
```

```
Ruijie(config)# access-list 102 permit udp any any eq
domain
```

```
Ruijie(config)# access-list 102 permit icmp any any echo
```

```
Ruijie(config)# access-list 102 permit icmp any any
```

**echo-reply**

## 3) MAC

```

MAC 00d0f8000c0c
100 1
Ruijie(config)# access-list 702 deny host 00d0f8000c0c
any aarp
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in

```

## 4) Expert

```

Expert Extended ACL ACL
IP 192.168.12.3 MAC 00d0.f800.0044
TCP
Ruijie(config)# access-list 2702 deny tcp 02Tst
192.168.12.3 mac 00d0.f800.0044 any any
Ruijie(config)# access-list 2702 permit any any any any
Ruijie(config)# show access-lists
expert access-list extended 2702
10 deny tcp 2Tst 192.168.12.3 mac 00d0.f800.0044 any
any
10 permit any any any any

```

<b>show access-lists</b>	
<b>mac access-group</b>	MAC

S2300

ACL

ACL

**ip access-list**

```

IP ACL IP ACL
no ACL
ip access-list {extended | standard} {id | name}
no ip access-list {extended | standard} {id | name}

```

```

id IP 1-99 1300-1999 100-199
2000-2699
name IP

```

ACL

```

ACL deny permit ACL show ip
access-lists

```

ACL

```

Ruijie(config)# ip access-list extended 123
Ruijie(config-ext-nacl)# show ip access-lists
ip access-list extended 123
Ruijie(config-ext-nacl)#

```

ACL

```

Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# show ip access-lists
ip access-list standard std-acl
Ruijie(config-std-nacl)#

```

<b>show ip access-lists</b>	IP

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**MAC access-list**

```

MAC ACL no
ACL
mac access-list extended {id | name}
no mac access-list extended {id | name}

```

*id* MAC 700-799

*name* MAC

MAC ACL

*name* ACL

**show access-lists** ACL

IPV6 ACL

```
Ruijie(config)# ipv6 access-list v6-acl  
Ruijie(config-ipv6-nacl)# show access-lists  
ipv6 access-list extended v6-acl  
Ruijie(config-ipv6-nacl)#
```



**show access-lists**

ACL

ACL

```

Ruijie# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
Ruijie# config
Ruijie(config)# ip access-list resequence 1 21 43
Ruijie(config)# exit
Ruijie# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
64 deny any any
Ruijie#

```

<b>show access-lists</b>	

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**deny**

(deny)

ACL

ACL

1) IP

```
[sn] deny {source source-wildcard | host source | any}
```

2) IP

```
[sn] deny protocol source source-wildcard destination
destination-wildcard [precedence precedence] [tos tos] [fragments]
[time-range time-range-name]
```

IP

**Internet Control Message Protocol (ICMP)**

```
[sn] deny icmp {source source-wildcard | host source | any}
```

{*destination destination-wildcard* | **host** *destination* | **any**} [*icmp-type*]  
[[*icmp-type [icmp-code]*] | [*icmp-message*]] [**precedence** *precedence*]  
[**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

### Transmission Control Protocol (TCP)

[*sn*] **deny tcp** {*source source-wildcard* | **host** *Source* | **any**} [*operator*  
**port** [*port*]] {*destination destination-wildcard* | **host** *destination* | **any**} [*operator*  
**port** [*port*]] [**precedence** *precedence*] [**tos** *tos*]

*destination-wildcard* | **host** *destination* | **any** } **host**  
*destination-mac-address* | **any** } [*icmp-type*] [[*icmp-type* [*icmp-code* ]] |  
[*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragments**]  
[**time-range** *time-range-name*]

#### Transmission Control Protocol (TCP)

[*sn*] **deny tcp** [[**VID** [*out*][*inner in*]]]{*source source-wildcard* | **host**  
*Source* | **any** } **host** *source-mac-address* | **any** } [*operator* **port** [*port*]]  
{*destination destination-wildcard* | **host** *destination* | **any** } **host**  
*destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence**  
*precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]  
[**match-all** *tcp-flag*]

#### User Datagram Protocol (UDP)

[*sn*] **deny udp** [[**VID** [*out*][*inner in*]]]{*source source-wildcard* | **host**  
*source* | **any** } **host** *source-mac-address* | **any** } [*operator* **port** [*port*]]  
{*destination destination-wildcard* | **host** *destination* | **any** } **host**  
*destination-mac-address* | **any** } [*operator* **port** [*port*]] [**precedence**  
*precedence*] [**tos** *tos*] [**fragments**] [**time-range** *time-range-name*]

#### 5) 5 IPV6

[*sn*] **deny protocol**{*source-ipv6-prefix/prefix-length* | **any** | **host**  
*source-ipv6-address*} {*destination-ipv6-prefix / prefix-length* | **any**  
| *hostdestination-ipv6-address*} [**dscp** *dscp*] [**flow-label**  
*flow-label*] [**fragments**] [**time-range** *time-range-name*]

#### IPV6

#### Internet Control Message Protocol (ICMP)

[*sn*]**deny icmp** {*source-ipv6-prefix / prefix-length* | **any**  
*source-ipv6-address* | **host**} {*destination-ipv6-prefix / prefix-length*  
| **host** *destination-ipv6-address* | **any**} [*icmp-type*] [[*icmp-type*  
[*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *prefix-length*  
| **host**

**any**][*operator port [port]*] [**dscp** *dscp*] [**flow-label** *flow-label*]  
**[fragments]** [**time-range** *time-range-name*]

### access-list

```

Sn   ACL
source-ipv6-prefix   IPv6
destination-ipv6-prefix   IPv6
prefix-length
source-ipv6-address   IPv6
destination-ipv6-address   IPv6
dscp
dscp                   0-63.
flow-label
flow-label             0-1048575.
protocol               IPV6           IPV6 | icmp | tcp | udp   <0-255>

```

ACL

ACL

ACL

```

Expert Extended ACL      ACL
IP      192.168.4.12      MAC      001300498272
TCP
Ruijie(config)# expert access-list extended 2702
Ruijie(config-exp-nacl)# deny tcp host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# permit any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended 2702
10 deny tcp host 192.168.4.12 host 0013.0049.8272 any
any
20 permit any any any any
Ruijie(config-exp-nacl)#

```

```

IP      ACL      IP      192.168.4.12
TCP      100      1

```



<b>show access-lists</b>	
<b>ipv6 traffic-filter</b>	IPV6
<b>ip access-group</b>	IP ACL
<b>mac access-group</b>	MAC ACL
<b>ip access-list</b>	IP ACL
<b>mac access-list</b>	MAC ACL
<b>expert access-list</b>	ACL
<b>ipv6 access-list</b>	IPV6 ACL
<b>permit</b>	

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## permit

ACL (permit) ACL

1) IP

[sn] **permit** {*source source-wildcard* | **host source** | **any**}

2) IP

[sn] **permit protocol** *source source-wildcard destination destination-wildcard* [**precedence precedence**] [**tos tos**] [**fragments**] [**time-range time-range-name**]

IP

**Internet Control Message Protocol (ICMP)**

[sn] **permit icmp** {*source source-wildcard* | **host source** | **any**} {*destination destination-wildcard* | **host destination** | **any**} [*icmp-type*] [[*icmp-type icmp-code*] | [*icmp-message*]] [**precedence precedence**] [**tos tos**] [**fragments**] [**time-range time-range-name**]

**Transmission Control Protocol (TCP)**

**[sn] permit tcp** {*source source-wildcard* | **host** *Source* | **any**

**Transmission Control Protocol (TCP)**

[sn] **permit tcp** [VID [out][inner in]]{source source-wildcard | host Source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragments] [time-range time-range-name] [match-all tcp-flag]

**User Datagram Protocol (UDP)**

[sn] **permit udp** [VID [out][inner in]]{source source-wildcard | host source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragments] [time-range time-range-name]

5) **IPV6**

[sn] **permit protocol** {source-ipv6-prefix / prefix-length | any | host source-ipv6-address} {destination-ipv6-prefix / prefix-length | any | hostdestination-ipv6-address} [dscp dscp] [flow-label ] [

Internet CoT0 1ntr0 TM-0. age Pr Tf 0 0026 Tc 0.00

deny

ACL

ACL

ACL

```

Expert Extended ACL      ACL
IP      192.168.4.12      MAC      001300498272
TCP

Ruijie(config)# expert access-list extended exp-acl
Ruijie(config-exp-nacl)# permit tcp host
192.168.4.12 host 0013.0049.8272 any any
Ruijie(config-exp-nacl)# deny any any any any
Ruijie(config-exp-nacl)# show access-lists
expert access-list extended exp-acl
10 permit tcp host 192.168.4.12 host 0013.0049.8272 any
any
20 deny any any any any any
Ruijie(config-exp-nacl)#

```

```

IP      ACL      IP      192.168.4.12
TCP      100      1

```

```

Ruijie(config)# ip access-list extended 102
Ruijie(config-ext-nacl)# permit tcp host 192.168.4.12
eq 100 any
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Ruijie(config-ext-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group 102 in
Ruijie(config-if)#

```

```

MAC      ACL      MAC      0013.0049.8272
          1      p
          R      u      i      j
config-ext-nacl)#4.10.20.10019 host
config-ext-nacl#

```

```

mac access-list extended
10 permit host 0013.0049.8272 any aarp702
Ruijie(config-mac-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# mac access-group 702 in

      ip      ACL                IP 192.168.4.12
      1

Ruijie(config)# ip access-list standard std-acl
Ruijie(config-std-nacl)# permit host 192.168.4.12
Ruijie(config-std-nacl)# show access-lists
ip access-list standard std-acl
10 permit host 192.168.4.12
Ruijie(config-std-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ip access-group std-acl in

      IPV6    ACL                IP 192.168.4.12
      1

Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# 11 permit ipv6
host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# exit
Ruijie(config)# interface gigabitethernet 1/1
Ruijie(config-if)# ipv6 traffic-filter v6-acl in

```

<b>show access-lists</b>	
<b>ipv6 traffic-filter</b>	IPV6
<b>ip access-group</b>	IP ACL
<b>mac access-group</b>	MAC ACL
<b>ip access-list</b>	IP ACL
<b>mac access-list</b>	MAC ACL
<b>expert access-list</b>	ACL
<b>ipv6 access-list</b>	IPV6 ACL
<b>deny</b>	ACL

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## list-remark text

ACL                    **no**

**list-remark text**

*Text*

ACL

ACL

```
Ruijie# ip access-list extended 102
Ruijie(config-ext-nacl)# list-remark this acl is to
filter the host 192.168.4.12
Ruijie(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Ruijie(config-ext-nacl)#
```

<b>show access-lists</b>	
<b>ip access-list</b>	IP

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## no sn

ACL

**no sn**

sn      ACL

ACL

ACL

ACL

```
Ruijie(config)# ipv6 access-list extended v6-acl
Ruijie(config-ipv6-nacl)# permit ipv6
host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)# 12 deny ipv6 host any any
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
12 deny ipv6 any any
Ruijie(config-ipv6-nacl)# no 12
Ruijie(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
10 permit ipv6 host ::192.168.4.12 any
Ruijie(config-ipv6-nacl)#
```

<b>show access-lists</b>	
<b>ip access-list</b>	ip ACL
<b>ipv6 access-list</b>	IPV6      ACL
<b>deny</b>	ACL
<b>permit</b>	ACL

RGOS10.0

## ip access-group

ip

**access-group**                  no

**ip access-group** {id | name} {in | out}

**no ip access-group** { *id* | *name* } {**in** | **out**}

*id* IP 1-199 1300-2699 1-1BT

*id* MAC 700-799  
*name* MAC  
**in**  
**out**

## IPV6 ACL

## ACL

**show ipv6 traffic-filter**

```
access-list v6-acl Gigabit 1
```

```
Ruijie(config)# interface GigaEthernet 0/1
```

```
Ruijie(config-if)# ipv6 traffic-filter v6-acl in
```

<b>show access-group</b>	ACL

## RGOS10.0

:

- ' **show access-lists**
- ' **show ip access-group**
- ' **show mac access-group**
- ' **show ipv6 traffic-filter**
- ' **show expert access-group**
- ' **show access-group**

**show access-lists**

ACL

ACL

```
show access-lists [id | name]
```

*id*

*name*

acl                    *id*   *name*                    ACL

```
Ruijie# show access-lists n_acl
ip access-list standard n_acl
Ruijie# show access-lists 102
ip access-list extended 102
Ruijie# show access-lists
ip access-list standard n_acl
ip access-list extended 101
mac access-list extended mac-acl
expert access-list extended exp-acl
ipv6 access-list extended v6-acl
```

<b>ip access-list</b>	IP ACL
<b>mac access-list</b>	MAC    ACL
<b>expert access-list</b>	Expert    ACL
<b>ipv6 access-list</b>	IPv6    ACL

RGOS10.0

## show ip access-group

IP ACL

**show ip access-group**[interface <interface>]

<interface>

## IP ACL

IP

## ACL

```
Ruijie# show ip access-group interface gigabitethernet
0/1
ip access-group aaa in
Applied On interface GigabitEthernet 0/1.
```

<b>ip access-list</b>	IP ACL

RGOS10.0

**show mac access-group**

## MAC

```
show mac access-group[interface <interface>]
```

```
<interface>
```

## MAC ACL

## MAC ACL

```
Ruijie# show mac access-group interface gigabitethernet
0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

<b>mac access-list</b>	MAC    ACL

RGOS10.0

```
Ruijie# show access-group  
ip access-list standard ipstd3  
Applied On interface GigabitEthernet 0/1.  
ip access-list standard ipstd4  
Applied On interface GigabitEthernet 0/2.  
ip access-list extended 101  
Applied On interface GigabitEthernet 0/3.  
ip access-list extended 102  
Applied On interface GigabitEthernet 0/8.
```

<b>ip access-group</b>	ip
<b>mac access-group</b>	MAC
<b>expert access-group</b>	Expert
<b>ipv6 traffic-filter</b>	IPV6

RGOS10.0

# QOS

QoS

QoS

1 policy-map

p

## IP-Precedence to DSCP

IP-Precedence	0	1	2	3	4	5	6	7
DSCP	0	8	16	24	32	40	48	56

## DSCP to CoS

DSCP	0	8	16	24	32	40	48	56
CoS	0	1	2	3	4	5	6	7

## mls qos trust

Qos

**mls qos trust [cos | dscp | ip-precedence]****no mls qos trust**

<b>cos</b>	Qos	CoS
<b>dscp</b>	Qos	DSCP
<i>ip-precedence</i>	Qos	IP-PRE
<b>no</b>		

```
Ruijie(config)# interface gigabitethernet 1/1  
Ruijie(config-if)# mls qos trust cos
```

```
show mls qos interface interface-id
```

## mls qos cos

CoS

**mls qos cos** *default-cos*

**no mls qos cos**

*default-cos*     0 7

**no**

CoS     0

Ruijie(config)# **interface gigabitethernet** *1/1*

Ruijie(config-if)# **mls qos cos** 7

**show mls qos interface** *interface-id*

## Class Maps

ACL

---

```

acl-id                                ACL id
class-map-name                        class map
no class-map class-map-name        class map
no match access-group acl-name| acl-id

```

```

MAC ACL, me
Ruijie(config)# mac access-list extended me
ACL
Ruijie(config-ext-macl)# permit host 1111.2222.3333 any
ACL
Ruijie(config-ext-macl)# exit
class-map, cm
Ruijie(config)# class-map cm
ACL
Ruijie(config-cmap)# match access-group me
class-map
Ruijie(config-cmap)# exit

show mac access-lists
show ip access-lists
show class-map

```

## Policy Maps

```

policy map pol pol pol pol pol pol pol pol
[no] policy-map policy-map-name
policy map class-map-name class-map-name
[no] class class-map-name

```

---

IP ipdscp IP

**set ip dscp new-dscp**

**no set ip dscp**

**police rate-bps burst-byte[exceed-action {drop | dscp dscp-value}]**

**no police**

*policy-map-name*

polycymap

**no policy-map policy-map-name**

policy map

*class-map-name*

class map

**no class class-map-name**

*new-dscp* DSCP

*rate-bps*

kbps

*burst-byte*

kbyte

*drop*

*dscp-value*

DSCP

policy map, po

Ruijie(config)# **policy-map po**

class-map cm

Ruijie(config-pmap)# **class cm**

dscp 10

Ruijie(config-pmap-c)# **set ip dscp 10**

1M,

4096k,

dscp 16

Ruijie(config-pmap-c)# **police 1000000 4096**

**exceed-action dscp 16**

**show policy-map**

## service-policy

policy map

**service-policy** {input | output} *policy-map-name*

**no service-policy** {input | output}

*policy-map-name*                      policymap

**no**                      policy map

```
Ruijie(config)# interface fastEthernet 0/1
```

```
Ruijie(config-if)# service-policy input po
```

**show mls qos interface**

## priority-queue

**[no] priority-queue**

WRR

```
Ruijie(config)# no priority-queue
```

**show mls qos queueing**

## priority-queue cos-map

CoS



**show mls qos queueing**

## **mls qos map cos-dscp**

CoS                    DSCP

**mls qos map cos-dscp** *dscp1...dscp8*

**no mls qos map cos-dscp**

**dscp**

**no**

```
Ruijie(config)# mls qos map cos-dscp 8 10 16 18 24 26 32  
34
```

**show mls qos maps**            dscp-cos maps,dscp-cos maps

p cos-dsp ( J/csp/0s) # 10.006 0 Td<1173.88 679.4003 Tm2741801.)1mmj



wrr

```
Ruijie(config)# mls qos scheduler wrr
```

```
show mls qos scheduler
```

## mls qos map ip-prec-dscp

ippre                  DSCP

```
mls qos map ip-prec-dscp dscp1...dscp8
```

```
no mls qos map ip-prec-dscp
```

```
dscp
```

```
no
```

```
Ruijie(config)# mls qos map ip-prec -dscp 8 10 16 18 24  
26 32 34
```

```
show mls qos maps                  dscp-cos maps,dscp-cos maps  
ip-prec-dscp maps
```

## show class-map

class map

**show class-map** [*class-name*]

*class-name* class map

class map

Ruijie# **show class-map**

## show policy-map

QoS policy map [ class *class-name*]

**show policy-map** [*policy-name* [**class** *class-name*]]

*policy-name* policy name

*class-name* class map

policy name

Ruijie# **show policy-map**

## show mls qos interface

QoS

**show mls qos interface** *interface-id* [**policers**]

*interface-id*

**policers**

police

QoS

```
Ruijie# show mls qos interface fastEthernet 0/1
```

## show mls qos queueing

QoS (cos-to-queue map,wrr weight,drr weight)

**show mls qos queueing**

```
Ruijie# show mls qos queueing
```

## show mls qos scheduler

**show mls qos scheduler**

```
Ruijie# show mls qos scheduler
```

## show mls qos maps

dscp-cos maps,dscp-cos maps ip-prec-dscp maps

**show mls qos maps [cos-dscp | dscp-cos]**

**cos-dscp** cos-dscp maps

**dscp-cos** dscp-cos maps

dscp-cos maps dscp-cos maps

Ruijie# **show mls qos maps**

## show mls qos rate-limit

**show mls qos rate-limit [interface *interface-id*]**

**interface** interface-id rate-limit

Ruijie# **show mls qos rate-limit**



```
Ruijie(config)# rldp enable
```



**no rldp detect-max**

*num* , 2-10

2

5 :

Ruijie(config)# **rldp detect-max 5**

<b>rldp detect-interval</b>	

**rldp port**

rldp

**rldp port { unidirection-detect | bidirection-detect | loop-detect }  
 { warning | shutdown-svi | shutdown-port | block }**

**no rldp port { unidirection-detect | bidirection-detect | loop-detect }**

**unidirection-detect**

**bidirection-detect**

**loop-detect**

**warning**

**shutdown-svi** shutdown svi

**shutdown-port** shutdown

**block**

RLDP

RLDP

fas 0/1

rldp

```
Ruijie(config)# interface fas 0/1
Ruijie(config-if)# rldp port loop-detect block
```

<b>rldp enable</b>	rldp

### rldp reset

**rldp shutdown disable**

rldp

**rldp reset**

```
Ruijie# rldp reset
```

<b>rldp enable</b>	Rldp

RLDP

# TPP

## topology guard

```
                                topology guard
                                no
[no] topology guard
```

## cpu topology-limit

```
Ruijie(config)# topology guard
Ruijie(config)# no topology guard
```

## tp-guard port enable

```
cpu topology-limit      CPU
```

## tp-guard port enable

```
no
```

**[no] tp-guard port enable**

CPU

( AP )

```
Ruijie(config-if)# tp-guard port enable
```

```
Ruijie(config-if)# no tp-guard port enable
```

**topology guard**

## **TPP**

**show tpp**

**show tpp**

tpp

Ruijie# **show tpp**

**topology guard**

- 
- ' **cat**
  - ' **cd**
  - ' **cp**
  - ' **ls**
  - ' **makefs**
  - ' **mkdir**
  - ' **mv**
  - ' **pwd**
  - ' **rm**
  - ' **rmdir**

## **cat**

**cat type {bin | text} file path**

**cat file path type {bin | text}**

<b>bin</b>	
<b>text</b>	
<b>path</b>	(            )

---

---

## cp

**cp dest** {*DESTINE\_FILE* | *DIRECTORY*} **sour** *SOURCE\_FILE*  
**cp sour** *SOURCE\_FILE* **dest** {*DESTINE\_FILE* | *DIRECTORY*}

*DESTINE\_FILE*

*DIRECTORY*

*SOURCE\_FILE* ( )

---

## cp

---

log.txt :

Ruijie# **cp sour** *log.txt* **dest** *../log\_bak.txt*

## ls

**ls** *PATHNAME*

---

*PATHNAME*

Ruijie# **ls**

tmp

Ruijie# **ls tmp**

## **makefs**

**makefs dev DEVNAME fs FSNAME**

**makefs fs FSNAME dev dev,GQ,**

---

b

---

**mv dest** {*DESTINE\_FILE* | *DIRECTORY*} **sour** *SOURCE\_FILE*

*SOURCE\_FILE*

*DESTINE\_FILE/DIRECTORY*

a ( **type file**); b '?'  
'? '

,

log.txt , config.txt,

,

Ruijie# **mv sour** tmp/log.txt **dest** ../config.txt

log.txt tmp

Ruijie# **mv dest** /mnt/tmp **sour** tmp/log.txt

**pwd**

**pwd**

<b>pwd</b>	

---

Ruijie# **pwd**

**rm**

**rm** *FILE*

---

## **rmdir**

**rmdir** *DIRECTORY*

*DIRECTORY* ,

---

## logging on

no

**logging on**

**no logging on**

```
RGOS                               Console    VTY
Server                               FLASH     Syslog
                                     1 Log
```

```
Ruijie(config)# no logging on
```

<b>logging buffered</b>	
<b>logging</b>	Syslog Server
<b>logging file flash:</b>	FLASH

---

## logging console



---



---

FLASH

trace.txt

64K,

6

Ruijie(config)# **logging file flash:trace**

<b>logging on</b>	
<b>show logging</b>	
<b>more flash</b>	FLASH

## logging console

no

**logging console *level***

**no logging console**

*level*

0 7

1

Debugging (7)

**show logging**

6

Ruijie(config)# **logging console informational**

--	--

<b>logging on</b>	
<b>show logging</b>	

## logging monitor

```

VTY telnet SSH
no VTY

```

**logging monitor level**

**no logging monitor**

*level*

1

Debugging (7)

```

VTY terminal
monitor VTY
logging monitor

```

**Logging monitor** VTY

VTY 6

Ruijie(config)# **logging monitor informational**

<b>logging on</b>	
<b>show logging</b>	

---

## logging trap

Syslog Server  
no

Syslog Server

**logging trap** *level*

**no logging trap**

*level*

1

Informational(6)

Syslog Server

logging

Syslog Server

logging trap

**show logging**

6

202.101.11.22

Syslog Server

Ruijie(config)# **logging** 202.101.11.22

Ruijie(config)# **logging trap informational**

---

**no**

**logging source interface** *interface-type interface-number*

**no logging source interface**

*interface-type*

*interface-number*

Syslog Server

Loopback 0

Syslog

Ruijie(config)# **logging source interface loopback 0**

<b>logging</b>	Syslog Server

## logging source ip

**no**

**logging source ip** *A.B.C.D*

**no logging source ip**

*A.B.C.D* IP

---

## Syslog Server

Loopback 0          Syslog

```
Ruijie(config)# logging source ip 192.168.1.1
```

<b>logging</b>	Syslog server

## logging facility

---

1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslogd
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon

---

---

**no service sequence-numbers**

1

Ruijie(config)# **service sequence-numbers**

<b>logging on</b>	
<b>service timestamps</b>	

## **service timestamps**

no

default

**service timestamps** *message-type* [*uptime* | *datetime*]

**no service timestamps** *message-type* [**uptime** | **datetime**]

**default service timestamps** *message-type* [**uptime** | **datetime**]

*message-type*  
0 6

Log Debug Log  
Debug 7

*uptime*

\* \* \* \* 07:00:10:41

---

*datetime*  
16:53:07

Jul 27

RTC

Uptime

Datetime

Log

Debug

Datetime

Ruijie(config)# **service timestamps debug datetime**

Ruijie(config)# **service timestamps log datetime**

<b>logging on</b>	
<b>service sequence-numbers</b>	

## **service sysname**

no

**service sysname**

**no service sysname**

---

```
Mar 22 15:28:02 %SYS-5-CONFIG: Configured from console
by console
Ruijie# config terminal
Enter configuration commands, one per line. End with
CNTL/Z.
Ruijie(config)# service sysname
Ruijie(config)# end
Ruijie#
Mar 22 15:35:57 S3250 %SYS-5-CONFIG: Configured from
console by console
```

<b>show logging</b>	

## more flash

FLASH

**more flash:filename**

*Filename*

FLASH

*"/f2" "/f3'*

FLASH

```
Ruijie# more flash://f2/log.txt
look up file in the extended flash://f2/log.txt
```

---

00004 2004-11-17 4:1:32 Ruijie: %5:Reload requested by Administrator. Reload Reason :Reload command

logging file flash:	FLASH

## clear logging

**clear logging**

Ruijie# **clear logging**

logging on	
show logging	
logging buffered	

## show logging

---

## show logging

### show logging

```
Ruijie# show logging
Syslog logging: enabled
Console logging: level debugging, 4 messages logged
Monitor logging: level informational, 0 messages logged
Buffer logging: level debugging, 6 messages logged
Timestamp debug messages: datetime
Timestamp log messages: disabled
Sequence log messages: enable
Trap logging: level debugging, 2 message lines logged, 0
reserved, 0 fail
logging to 202.101.11.22
logging to 192.168.200.112
Log Buffer (Total 4096 Bytes) : have written 680
00001 2004-11-17 10:20:59 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/0, changed state to up
00002 2004-11-17 10:20:59 Ruijie: %7:%LINE PROTOCOL
CHANGE: Interface FastEthernet 0/0, changed state to UP
00003 2004-11-17 10:57:18 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to
administratively down
00004 2004-11-17 10:57:21 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to down
00005 2004-11-17 10:57:41 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to
administratively down
00006 2004-11-17 10:57:43 Ruijie: %7:%LINK CHANGED:
Interface FastEthernet 0/1, changed state to down
```

Syslog logging	<b>disabled</b> <b>enabled,</b>
Console logging	

---

Monitor logging	VTY
Buffer logging	
Timestamp debug messages	Debug
Timestamp log messages	Log
Sequence log messages	
Trap logging	Syslog Server
Log Buffer	

<b>logging on</b>	
<b>clear logging</b>	

**show logging count**

**show logging count**

**count**

**show logging count**

**logging**

---

```
=====
SYS          CONFIG_I          5  1          Jul 6 10:29:57
-----
SYS TOTAL                    1
```

<b>logging count</b>	
<b>show logging</b>	
<b>clear logging</b>	

- ' **device-priority**
- ' **device-description**
- ' **show member**

## device-priority

**device-priority** [*member*] *priority*

<i>member</i>	ID member 1
<i>priority</i>	[1, 10]

```

10
1
1 10

```

write

```

2 8

```

Ruijie(config)# **device-priority** 2 8

<b>show member</b>	

---

## device-description

**device-description** [**member** *member*] *description*

<b>member</b> <i>member</i>	ID member 1
<i>description</i>	31

write

---

**show member**

